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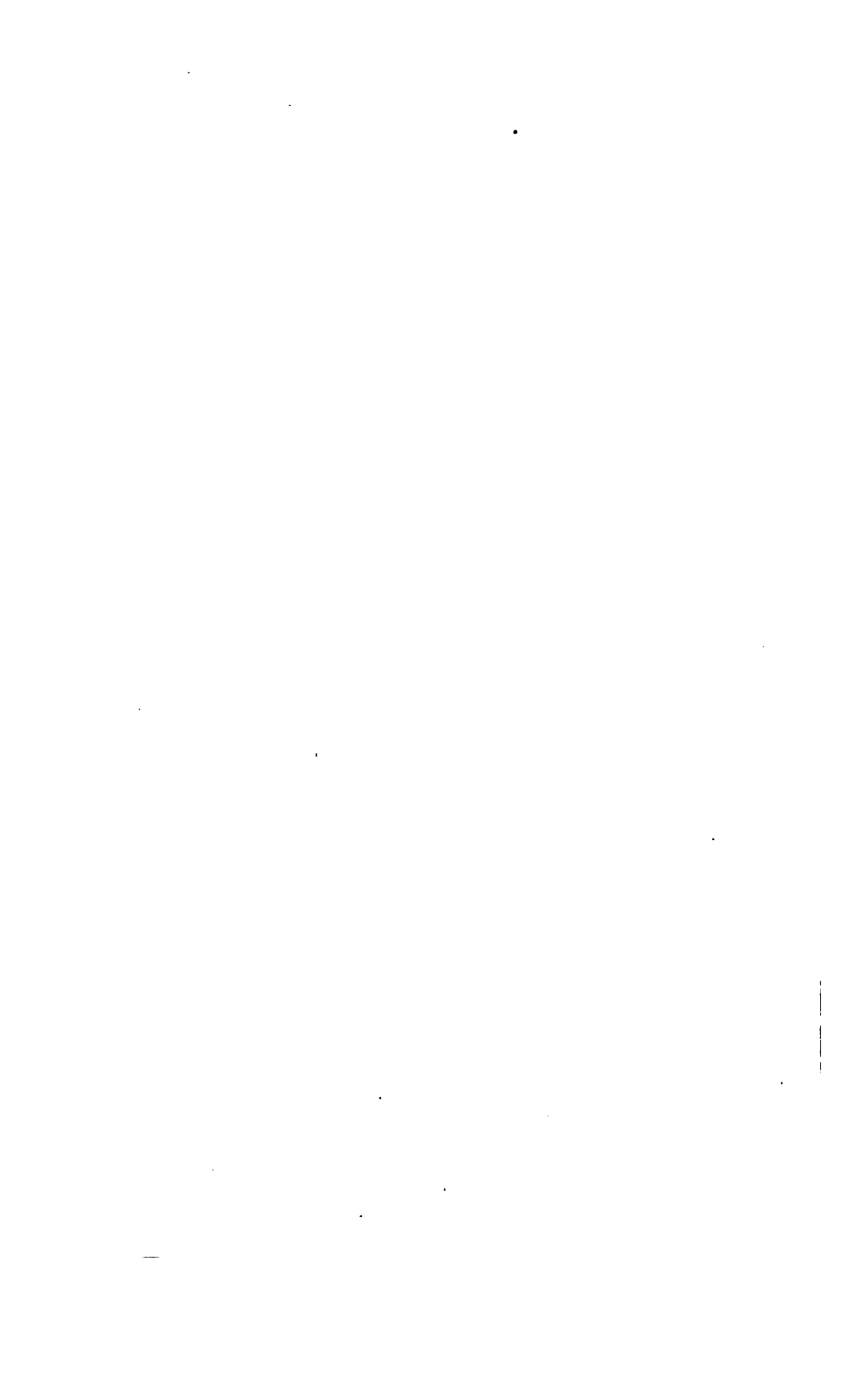
Navy Department











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NAVY DEPARTMENT  
BUREAU OF MEDICINE AND SURGERY

ANNUAL REPORT *CH*  
OF THE  
**Surgeon General, U. S. Navy**  
CHIEF OF THE BUREAU OF MEDICINE AND SURGERY  
TO THE  
SECRETARY OF THE NAVY

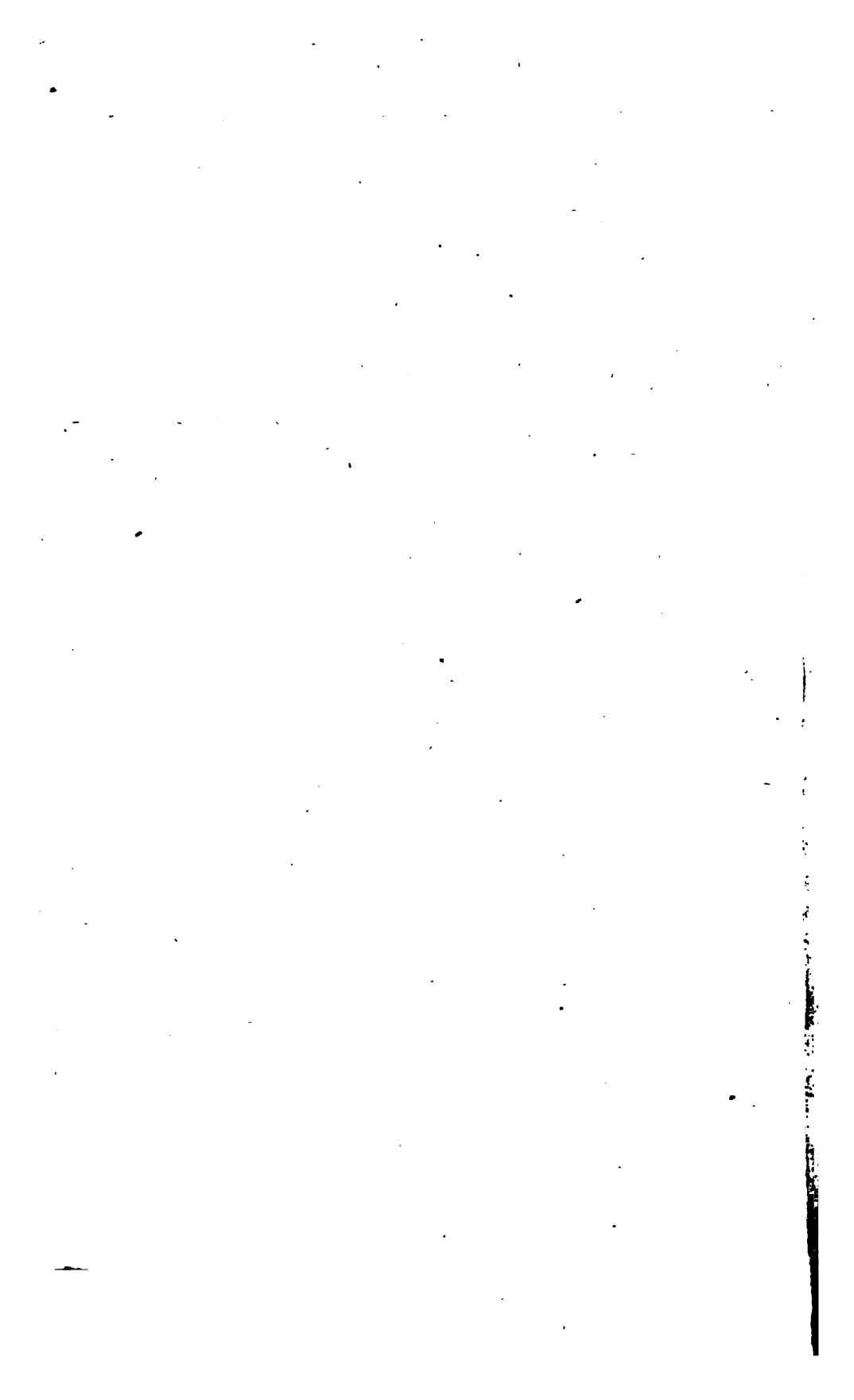
FOR THE FISCAL YEAR

1918



WASHINGTON  
GOVERNMENT PRINTING OFFICE  
1918





NAVY DEPARTMENT  
BUREAU OF MEDICINE AND SURGERY

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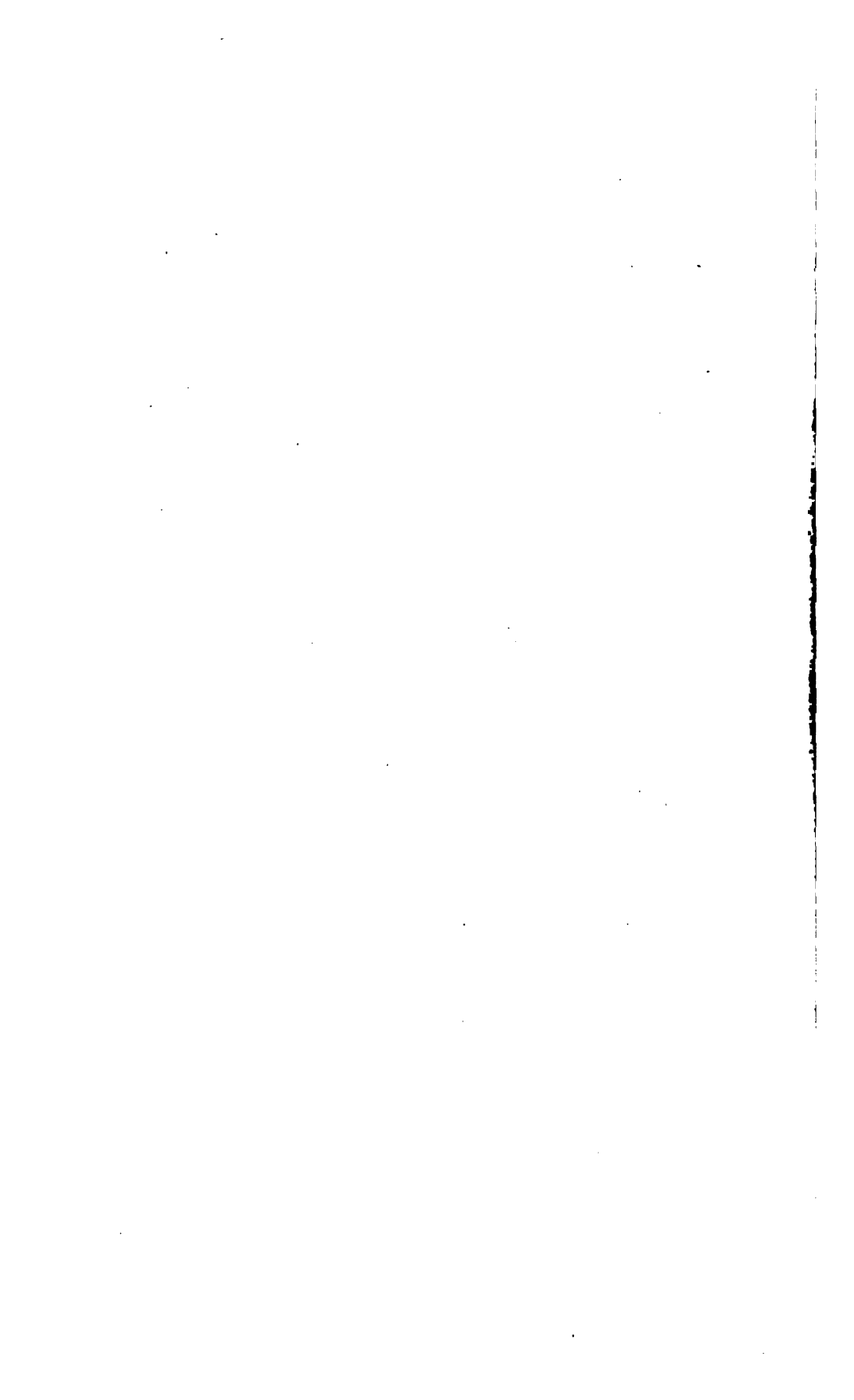


*Harvard Department*

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**REPORT**  
**OF THE**  
**SURGEON GENERAL, UNITED STATES NAVY.<sup>1</sup>**

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DEPARTMENT OF THE NAVY,  
BUREAU OF MEDICINE AND SURGERY,  
*Washington, D. C., October 1, 1918.*

To: Secretary of the Navy.

Subject: Annual report for fiscal year 1918.

In submitting the following report of the activities of the bureau I wish to state at the outset that the policy during the past year has been to concentrate every effort on the immediate physical needs of our personnel. There are at this time many collateral lines of medical work, such as historical investigation and records connected with the war, general scientific research, general medical education, theoretical studies of problems bearing on naval life in general, which are interesting in themselves and would be of ultimate value to the service, but neither the time available nor the available personnel have warranted the pursuit of these things. The conditions of war give full scope for the utmost endeavor while confining ourselves strictly to keeping the well from getting sick and to helping the sick to get well. Though eager to cooperate with every good agency concerned with public utilities or conducting public business of any sort, I have felt that the health of the Navy was my first concern and that to go outside of my immediate province, through the natural impulse to help those outside of it, might easily involve neglect of the special duty with which I am charged and for which alone I can be held responsible. It has been my earnest endeavor to meet every legitimate requirement within the Navy, and at the same time to observe the closest economy in the expenditure of the Nation's funds. This determination to make no demands, except those based on past experience, common sense and the anticipation of imminent contingencies, has frequently occasioned not a little anxiety, lest through unforeseen events the provisions made should prove inadequate.

A rapid expansion in personnel and matériel marked the beginning of and has steadily progressed throughout the fiscal year. Steps were being taken to meet the needs of the increased personnel when my last report was submitted, and the necessary measures for housing and treating the sick and for controlling the health of all have been taken, in so far as circumstances within the control of this bureau permitted, and I believe that they were adequate. A broad survey of the situation enables me to report to you that, while there

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<sup>1</sup> All statistics cover the calendar year 1917.

must inevitably have been some errors and shortcomings dependent on human fallibility, the sick have been duly cared for and the well have been hedged about with every protection which it was within our power to furnish.

To care for the sick and to protect the well is at all times a problem of difficulty. In time of war the task is overwhelmingly great because, when large numbers of men are brought together, epidemic diseases are enormously increased. Concentration works the greater havoc when it is rapidly carried on, because advance preparation can never keep pace with the enrollments. Next to the fact that the health of the Navy has been excellent and the mortality rate very low, I find a cause for satisfaction in the evidence that commanding officers are coming more and more to appreciate the importance of those laws of hygiene and sanitation which can not be broken except at terrible cost. The firm purpose of the bureau and the honest intent of all medical officers of judgment and experience have been to contribute to the efficiency of the Navy and to further its interests as a whole. If, in recommendations looking to the ultimate accomplishment of those just aims which are common to all, we have sometimes seemed to hamper momentarily the execution of military plans, we have been ready to compromise and have endeavored to avoid dogmatism in the expression of opinion, inculcating upon all branches of the medical department the necessity for cooperation and for coordination of effort and the duty of subordinating individual views and the theoretical demands of the situation to the best practical method that will meet with general acceptance. Whenever overcrowding has occurred it has been through zeal for the attainment of the ultimate success of our arms, and in many instances it has been the inevitable result of military necessity. On our ships new men had to be trained, and trained with all possible dispatch. It was necessary to have on board older officers and men in sufficient numbers to conduct the training, as well as to handle the ship with more than ordinary skill and precaution. But, in times of peace even, the conditions inherent to life afloat necessarily approach very closely the margin of safety for health. It should be generally recognized, therefore, that to a considerable extent any defects of system and management that may have developed in the present exigency are ascribable to the country's unpreparedness for operations of such unexpected magnitude as those we have been compelled to undertake in this colossal war.

With these preliminary observations, and after testifying to the willing service and the high character of the service rendered by medical officers, dental officers, female nurses, hospital corpsmen, and the civilians working with us, I proceed to a detailed consideration of the features of special interest embraced in the year's work.

#### PERSONNEL.

**MEDICAL CORPS.**—The commissioned medical personnel available in the Medical Department of the Navy at the issuance of my last annual report totaled approximately 1,800. Since that date some 1,200 additional medical officers have been enrolled, giving a total of 3,000. This increase has more than kept pace with the growth of the Navy, and has allowed for the constant maintenance of a mod-

erate inactive reserve which can be depended upon to meet unusual service demands. Officers of service have been sufficiently numerous to allow the maintainance of high physical and professional standards. The increase in our personnel has been a great source of gratification as regards professional ability, initiative and officerlike qualities. All candidates have been rigidly examined by permanent and experienced boards located at our naval hospitals, and those qualifying have been required to demonstrate thorough satisfactory physical, professional, and moral fitness before acceptance for naval duty. In the many and varied activities which they have been compelled to handle, I am glad to say that the Medical Department has every right to be proud of the achievements of the medical officers in the Naval Reserve Force.

As during 1917, so at the time of graduation of the 1918 Class "A" medical schools the opportunity of enrollment was extended to graduates of exceptional standing without professional examination. Some three hundred of these young men, vouched for by the deans of their respective institutions as being the best in their classes, were thus enrolled. The great majority of them are now on duty in our naval hospitals, or are finishing civilian internships prior to orders to active service. With the courteous cooperation of the Surgeon General of the Army those students in the Medical Enlisted Reserve Corps of that service were promptly released when expressing a preference for naval service and after qualifying before the physical examining boards.

Among the older physicians enrolling the various specialties have been sufficiently represented to supply all needs. The bureau has carefully indexed all such specialties, and it is believed that a minimum of waste of special abilities has occurred. The greatest assistance in this direction has been rendered by our carefully organized Naval Base and Station Hospital Units. Seven of the former, large, and 25 of the latter, smaller, units have been organized. Five of the former are on duty overseas, and 12 of the latter on these shores or at sea. In every case the professional nucleus provided by the permanent specialists of these units has been supplemented by as many additional juniors from the Regular or Reserve establishment as were needed to handle the increase in beds. Despite the adverse conditions encountered overseas in connection with the establishment of base hospitals, such as crowded communities, lack of housing, scarcity of labor, etc., only the highest encomiums have been bestowed for their handling of Army and Navy patients. New hospital construction in this country (discussed elsewhere in this report) has generally been accompanied by the assignment of a professional nucleus of a station hospital unit (i. e., surgeon, internist, roentgenologist, and specialists in laboratory and eye, ear, nose, and throat work). This procedure has also been adopted toward our three hospital ships now in commission.

The greatest drain upon the administrative abilities of our older medical officers of the regular service has been encountered in the organization of the transport service. Under present conditions this service and its convoy represent the front line trenches of the Navy. The many problems in connection with the transportation of from 1,500 to 8,000 soldiers aboard one ship have necessitated the detail of a medical officer of considerable naval experience as senior

medical officer. It has been the source of the greatest pleasure to me to note the unvarying enthusiasm and intelligent and devoted application of these officers to the responsibilities placed upon them. I doubt whether in any way the Medical Department of the Navy will receive more permanent credit than that accruing through this demonstration of naval efficiency to the millions transported overseas, and to the maimed and sick returned after contributing their share to the preservation of their country's and the world's safety. The many junior medical officers on this service have proved the worth of our new and rapidly enrolled personnel and can not be commended too highly. They are necessarily those who will shoulder the responsibilities of seniors in the new accessions to the transport force and we have at present a sufficient supply with experience of the past year to handle all new vessels.

Overseas activities have called for some 400 medical officers for duty with base hospitals, the marine brigade, aviation stations, naval bases and cruising vessels, other than those of the transport force. All demands from Vice Admiral W. S. Sims, United States Navy, have been largely anticipated or promptly acceded to.

The battleship fleet has imposed unusual problems upon our medical officers owing to the crowded condition of the complements. This has been ably met, however, and has proved a valuable school of instruction for juniors. The battleships have also been used as a reservoir for the detail of younger medical officers to newly commissioned vessels of small complements. By a careful scanning of the individual and by systematic avenues of instruction and training, the varied needs for new assignments have been happily met.

Legislation for permanent increase of the Navy in the act of July 1, 1918, carried automatically with it a strength of the Medical Corps, as of that date, of 1,166. The corps has at present 841 permanent and 431 temporary officers. To fill the 325 vacancies examinations are being held, open to those among the above temporary officers and among the officers of the Naval Reserve Force within the legal age limits of 21 to 32. It is not anticipated that these vacancies will all be filled at the present time, and examinations will be held at periodic intervals to this end.

Promotions within the corps up to and including lieutenant commander are dependent upon the promotion of the officer's running mate in the line, above that depending upon the fixed percentages of the corps' total as provided by the act of August 29, 1916. These latter are selected by a board appointed from members of the corps by the Secretary of the Navy. Upon the total of 1,166 the following are allowed in the various grades: Admiral 6, captain 47 (and 2 extra numbers), commander 93, lieutenant commander, lieutenant, and lieutenant (junior grade), 1,020. The percentage of permanent to temporary officers in each grade is in the same ratio as the number of permanent to temporary in the total of the corps.

The Naval Reserve Force at the time of my annual report of 1917 numbered only 800 medical officers. In addition to these some 200 officers of the Medical Reserve Corps, National Naval Volunteers, Naval Militia and acting assistant surgeons were available. These varied units have since that date by legislation or departmental action been incorporated with the Naval Reserve Force, and the latter at present embraces approximately 1,600 officers. Including those

Reserve Force officers who have since been absorbed by the Regular Establishment, permanent or temporary, some 2,400 have been enrolled from civil life. The character of this increase has been spoken of in a preceding paragraph, and the Navy is to be felicitated upon the very high average of professional ability accepted and maintained.

Original assignment to duty has been, when practicable, to the Naval Medical School, Washington, D. C. Courses of instruction of two months' duration have schooled these officers in the rudiments of naval discipline and drills and medical department duties, as well as in advanced work in laboratory procedure, hygiene, eye, ear, nose, and throat work, etc. When it was impossible to assign an officer to this school, he has been placed for his first duty at one of our large naval hospitals, stations, yards, training camps, etc., where in a less concentrated form he has obtained the information regarding naval procedure which was foreign to his civil practice or his professional education, but which is so essential in fitting him for the responsibilities of independent naval duty.

Original enrollments in the Naval Reserve Force have been in the grade of assistant surgeon, rank of lieutenant (junior grade). The only exception to this has occurred in the formation of base and station hospital units, where appropriate grades and ranks have been allowed. Every effort has been made by this bureau, however, to secure appropriate promotion for these officers, dependent upon priority of enrollment, professional standing, and age. In addition, the transfer of a number to a temporary status in the Regular Establishment procured for them automatic promotions thereafter. The Bureau of Navigation has been desirous of securing a uniform method of promotion in the Reserve, avoiding as far as possible a multiplicity of personal appeals backed by varied influences, and securing for all branches of the Reserve an avoidance of discrimination. All medical officers enrolled in class 4 of the Naval Reserve Force, will be transferred to class 2, which class carries with it automatic promotions with promotions of medical officers of the regular service of corresponding amount of active duty subsequent to such transfer. Commanding and senior medical officers should certify that medical officers of the Reserve Force under them are fully qualified for the performance of all their duties, ashore and afloat, and recommend that they be transferred to Class 2, as of such date as they were deemed so qualified. In no case can this be prior to the performance of three months of active duty. Owing to the difficulty of actually affording sea duty to all officers, and to the fact that Medical Department duties ashore vary little from those afloat, this recommendation can be made as to qualifications for all duties afloat based upon performance of duties ashore.

Promotions above lieutenant commander in the Reserve can be made upon recommendation of the same selection board which selects for promotion of officers of the Regular service.

Grateful acknowledgement is hereby made to the various medical societies, colleges, or other organizations, and to the private individuals who have aided the work of the Medical Department. As a conspicuous instance of this assistance may be mentioned the course of instruction for military medical officers given at the Rockefeller Institute on the most recent developments in wound treatment.



**DENTAL CORPS.**—The expansion of the Dental Corps of the Regular service and of the Reserve has kept pace proportionately with the growth of the medical personnel. From a total of 30 dentists at the outbreak of hostilities, this number has expanded to over 500. The naval appropriation act of July 1, 1918, in authorizing a permanent increase in the Navy, automatically set a maximum limit of 179 dental officers for the Regular service. There are at present 124 officers commissioned in the Dental Corps, thus leaving 55 vacancies. Examinations are held at the Naval Medical School, Washington, D. C., and at the naval hospitals at Great Lakes, Ill., and Mare Island, Cal., for the filling of such vacancies. The age limits for applicants by the same act are changed to 21 to 32 years. The balance of the 500 dental officers are in the Naval Reserve Force, which has also absorbed the old Dental Reserve Corps under a provision of the above legislation.

Promotions in the Dental Corps are made automatically with officers of similar length of service of the Medical Corps of the Navy, up to and including the rank of lieutenant commander. Beyond this, advancement to the pay and allowances of commander and captain occurs "when their total active service as dental officers in the Navy is such that if rendered as officers of the Naval Medical Corps it would place them in the list of medical officers with the pay and allowances of commander or captain, as the case may be."

Promotions in the Naval Reserve Force will be accomplished by a transfer to Class 2 of the Naval Reserve Force, as described on page 9 with regard to medical officers.

First assignments to active duty are, when practicable, made to the Naval Training Station, Great Lakes, Ill., where a school of instruction for dental officers is in operation. Classes are convened at intervals of 8 to 10 weeks, and the student officers receive training, in so far as naval duties go, similar to that provided for medical officers at the Naval Medical School, Washington, D. C. This is supplemented by advanced work in oral surgery and other professional branches.

The special course of instruction in oral surgery conducted by the Evans Institute of the University of Pennsylvania for the Dental Corps of the Army was made available for Navy dental surgeons, a number of whom attended and profited by the course.

A very large amount of valuable work has been accomplished by our dental officers, the effects of which are not only felt at the present time, but will be also after the return of our fighting forces to civil life upon the cessation of hostilities. It would be hard to say too much in praise of the services rendered by our dentists. A very large number of these officers are at sea or overseas. Fully 90 per cent of the members of the Regular corps commissioned during the war are on such distant duty. Additions are constantly being made to the Reserve Force list as new transports are commissioned or overseas activities are initiated or enlarged.

Elsewhere in this report the death of the late Dental Surgeon Weeden E. Osborne, United States Navy, is noted. Allow me to call attention here also to the fact that his was the first death of a commissioned officer of the Navy during the land fighting overseas. In the hottest of the fighting when the marines made their famous advance, because for the moment his more strictly limited profes-

sional activities could not be exercised, he threw himself into the general work of rescue and was instantly killed while carrying a wounded officer to a place of safety.

**NAVY NURSE CORPS (FEMALE).—**During the past fiscal year the total number of nurses assigned to duty numbered 1,128. Of this number 83 have been separated from the service by reason of honorable discharge, resignation, and disenrollment, leaving the number of the nurse corps at the beginning of the fiscal year 1918, 1,045. It is with regret that I report the death of two members of the nurse corps due to illness contracted in the line of duty.

Since December, 1917, 60 nurses have been assigned to each of four base hospitals abroad. In addition to these large units a group of 6 nurses has been assigned to a small naval hospital in France about to be commissioned, and a group of 15 nurses has been mobilized for assignment to a naval hospital in London, England.

In the United States nurses have been assigned to 10 hospitals commissioned since my last report. In addition to these hospitals nurses have been assigned to the Naval Gun Factory Annex, Rochester, N. Y., and the Cable Censor Office, New York; to the naval dispensaries at Annapolis and Charleston, and to the Hospital Corps Training School at the Naval Training Station, Newport, R. I. These demands have necessitated the assignment of nurses specially qualified as surgical nurses, welfare workers, and instructors, and have also required examination and promotion of 20 additional chief nurses.

The work which has been well established in the Philippine Islands, in Guam, and in Samoa has not decreased and the special work of training the native women in Guam and Samoa has been increased by additional nurses being detailed for the training classes. The tributes paid to the last graduating class in Samoa particularly noted the superior work which has been accomplished by the members of the nurse corps who have carried out the course of instruction for these women. Medical officers, who have been familiar with the excellent results from the established training schools in Guam and Samoa, recommended that the training of native women in the Virgin Islands be increased and in compliance with this recommendation nine members of the Navy Nurse Corps have been sent out and training schools in three of the islands are now well established.

A recent recommendation that a nurse be sent as supervisor at the Richmond Institute for Lepers and Insane, Virgin Islands, necessitated a volunteer for this work. In spite of the demands for war service an appeal was sent to two hospitals resulting in 14 members of the Navy Nurse Corps volunteering their services for this particular work.

At the request of a medical officer serving in Port au Prince, Haiti, two qualified nurses have been sent to instruct the Roman Catholic sisters there in the methods and development of training schools for native women who desire to learn nursing. Though this work has recently been started, the results have been entirely satisfactory and the nurses in charge of the undertaking have received special commendation from the President of the Republic of Haiti.

In making this report of the duties and responsibilities of the nurse corps so ably performed and cheerfully assumed it is hoped there will be a more general recognition of the value of their services

and that the appreciation which is bestowed upon other branches of the service will be fully and freely extended to them.

During the recent widespread epidemic of influenza the following-named nurses died of this disease, contracted in line of duty while nursing patients assigned to their care: Maude Coleman, Marie L. Hidell, Constance Martin, Edna E. Place, Vera M. Rockwell, Maria Eliza Trimble.

**THE HOSPITAL CORPS.**—The expansion of the naval personnel due to the war has been marked by a corresponding expansion of the hospital corps until, on January 1, 1918, this corps reached its then fully authorized strength, and recruiting, except to meet the needs of each naval district, had to be discontinued.

Growth of the hospital corps:

July 1, 1916-----	1,585
July 1, 1917-----	7,000
July 1, 1918-----	14,718

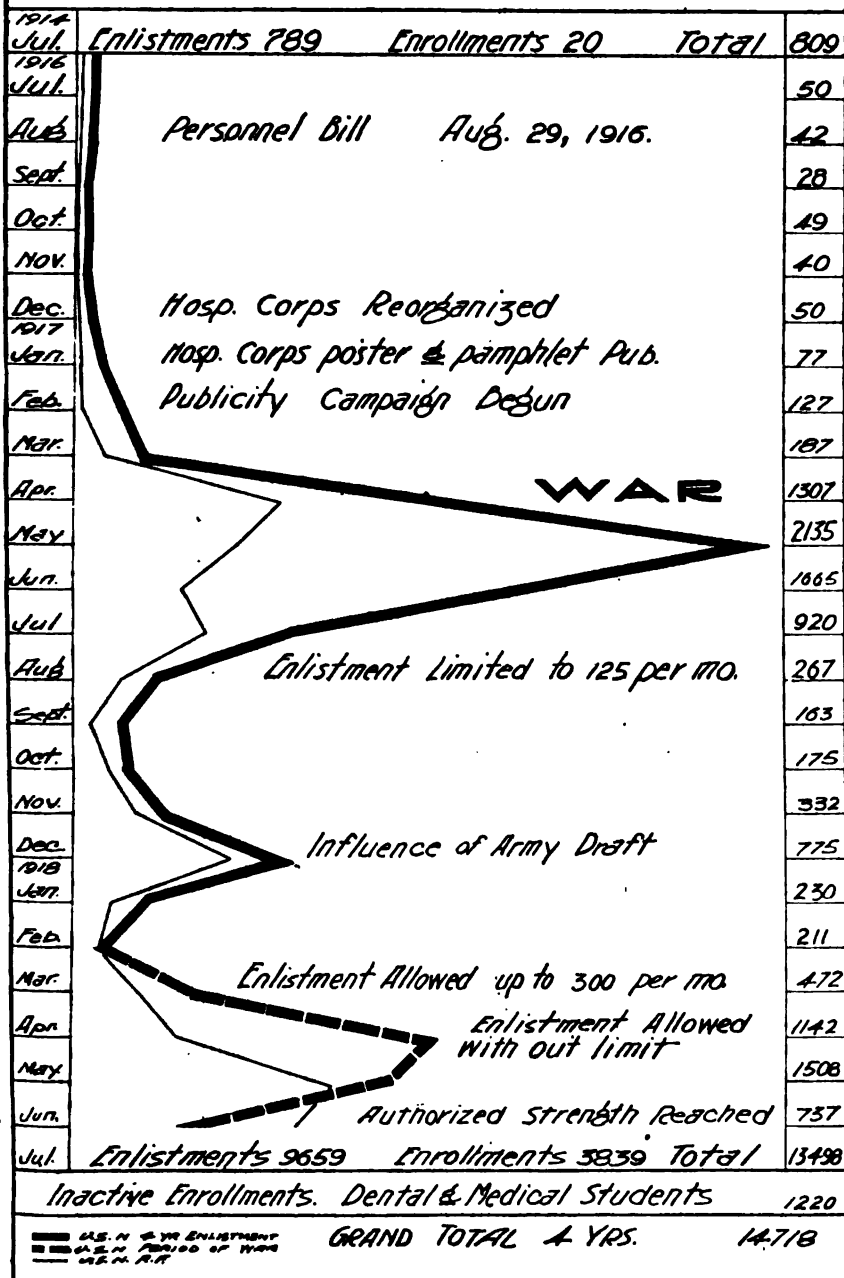
The 15 months between April 4, 1917, when war was declared, and July 1, 1918, brought into the hospital corps, through recruiting channels, about 12,000 men, making the corps nine times its prewar size.

The success with which this corps has been recruited to its full strength is due to three factors: (a) The personnel bill of August 29, 1916, which gave to the hospital corps the same opportunity for advancement in rating that existed in other enlisted branches; (b) the publicity given this corps by a poster and a pamphlet of information, both of which had wide distribution; (c) the effect of the war and the selective-service law, which made each young man of the country focus his attention upon the military service and come to a decision as to which particular branch of the service best fitted his temperament and abilities. So many young men have wished to enlist in the hospital corps that for the past year it has been possible to decide almost to a man just how many were to be enlisted through the recruiting channels each month. When the last increase in the authorized enlisted strength of the Navy was voted by Congress, the increased number of hospital corpsmen authorized by that bill was already enlisted and in training, so that practically the only way to enter the hospital corps to-day is through the enrolling office in the naval district to meet the district needs.

While the number of men in the hospital corps is now ample for all demands for the next few months, it will probably be necessary, if the war continues, to again open enlistments and continue enrolling for this corps. The time is not far distant when enlistments in the Navy and the draft for the Army will have taken all men of class 1 into active service and there will be left only young men below the draft age, older men above the draft age, and men in preferred classifications. All enlistments and enrollments in the hospital corps up to July 1, 1918, were between the ages of 18 and 28, and the men are fully up to the Navy's physical standard. Men above the age of 28 years were not allowed to enter this corps. For its future supply the Bureau of Medicine and Surgery will probably look to the younger rather than to the older classes of men.

The problem of training this large number of hospital corpsmen, practically all of whom had enlisted or enrolled in a period of 15

# Hospital Corps Recruiting



months, has been solved to a degree, but unfortunately it is difficult to make a well-trained and experienced assistant for a physician in a short time, no matter how much the training is intensified. To properly understand the difficulty of this problem, it is well to consider what type of person can be regarded as a well-trained and efficient hospital corpsman and what is the object of his training in the Navy. In the first place he has no counterpart in civil life. In the early part of his special training, we find him at a naval training school studying the theory and practice of many different subjects; in the next stage of his training, he has advanced sufficiently to be of value to the naval surgeon in the sick bay of a naval vessel; next he has become capable of acting as an efficient first-aid man on board a vessel or at a station where a medical officer is not regularly attached; by the last stage of his training, he has developed, in addition, a thorough knowledge of the clerical forms and procedures of the Medical Department of the Navy, a knowledge of the care and upkeep of medical supplies, and the ability to lead and control junior hospital corpsmen and patients with tact and judgment either aboard ship or at naval stations and in naval hospitals in any part of the world.

At first sight, it may seem a simple task to train a man to be of value to a medical officer in the sick bay of a vessel, but even this degree of training is not easy to accomplish. At sea the medical officer is often, in the course of a short period, confronted with varied problems for the solution of which in civil life he could call upon a large number of persons of special training. At sea he has only himself and his hospital corpsmen. On shore, in civil communities, there is the trained nurse, the registered pharmacist, the stenographer and typewriter, the dental assistant, the laboratory assistant, the X-ray expert, and many others having special occupations upon whom the physician relies from time to time to help him in the care of his patients. If we look at the trained nurse in civil life, we find that here again is a subdivision into the surgical nurse, the nurse best able to care for contagious diseases, the nurse familiar with the care of the insane, the nurse who knows most about a fever case, the nurse specially able to care for the tubercular, etc. At sea the hospital corpsman, who to-day assists the doctor in the operating room, may to-morrow find himself placed in charge of an insane patient; the next case may be one of pneumonia, and the next one of diphtheria. He may find himself suddenly called upon to transport the wounded, either ashore with a landing party of marines, or from boat to ship, or up and down ship's ladders and through the narrow gangways and passageways of the modern battleship. He may be assigned as clerk in the surgeon's office, or to work in a ward where he is called upon to care for minor surgical conditions, expected to know how to sew up a scalp wound or dress a burn, and to prepare the operating room for a surgical operation or a microscopic slide for a bacteriological examination. When sufficiently trained to be of immediate value to a doctor in a sick bay at sea, he can do all of these things and more besides with considerable efficiency. The hospital corpsman is not a nurse, not a registered pharmacist, not a hospital orderly, but he is one who has begun to prepare himself for the difficult task of becoming of real and general assistance to the medical officer.



The system of training the hospital corpsman in vogue before the war has stood the test of the great expansion of the last few months. The enthusiasm, interest, devotion to duty, and teaching ability of the doctors, dentists, pharmacists and others at the four elementary hospital corps schools<sup>1</sup> deserve the highest praise. The efforts made by the medical officers at hospitals and aboard ships to carry on the training of these men at a time when they were busy with many varied and arduous duties, have been noted with appreciation. The establishment of well-thought-out plans for the training of hospital corpsmen in conformity with the general policy of this bureau, undertaken by many ships and stations, and especially by the medical aides to the commandants of the naval districts, is an indication of the interest which all have taken in the training of these men. In many ways the cooperation and assistance of civilian pharmaceutical, dental, and medical schools, have been offered and utilized with the consent and appreciation of the bureau. The training of the hospital corps has gone smoothly on in spite of the growth of its schools from a prewar capacity of 100 to the present capacity of about 3,000 persons. At our four schools, the recruit is given a full six months of didactic instruction, infantry and hospital corps drill. From these schools, he goes to the naval hospital where female nurses, doctors, dentists, and pharmacists supervise his work and lead him toward the acquisition of a practical knowledge of the subjects taught him at the elementary school.

Each naval district has in addition to the four regular hospital corps schools a system of training whereby hospital corpsmen of the Naval Reserve Force are receiving excellent continuous instruction at the district stations, on board district vessels, and often in the wards of civil hospitals and in the clinics of the larger cities, especially those of Boston, New York, Philadelphia, San Francisco, Los Angeles, Providence, and New Orleans. From the practical training received from the naval hospital and in the naval district, the hospital corpsmen flow sometimes to service with the Marine Corps for duty beyond seas, or to the air stations of the Naval Flying Corps, though most go to receiving ships for general detail to the vessels of the fleet. While at sea or overseas with active units, the training of the hospital corpsman continues as a part of his daily duty in accordance with Naval Instructions 2642.

On board the vessels of the Navy transport service where at this time a large number of hospital corpsmen are on duty, the more enthusiastic and ambitious hospital corpsmen are given the privilege of leaving their ship during working hours, when in port, to go into the city hospitals and clinics for practical instruction from civilian doctors and nurses so that they may return to their ships inspired by contact with the ideal conditions ashore, to simulate these conditions so far as may be practicable at sea. This plan has recently spread to the vessels of the Navy transport service at Philadelphia and at Norfolk and is now considered an especially active factor of training. When, after a time at sea, the hospital corpsman has become sufficiently trained to be of value for duty independent of a medical officer, he leaves the larger ship and is transferred to a naval vessel with a crew too small to rate a doctor. Here the hospital

<sup>1</sup> Hospital corps school activities in detail are reported on page 22 of this report.

corpsman takes an important place, and for a time his training ceases and he is left to his own resources to show whether it has or has not been successful. From these small naval vessels, the best hospital corpsmen, after a reasonable period of service, tend to be returned to naval hospitals ashore to improve their clerical, property accounting, pharmaceutical, and first-aid knowledge, so that they may be trusted for detail as the chief pharmacist's mates on destroyers where their training and ability are frequently tested by the medical and surgical emergencies produced by the present submarine warfare, when men injured by enemy gunfire, or burned by steam, or exhausted by exposure, must of necessity depend upon them for intelligent first-aid treatment and care.

Time to gain experience is necessary before a hospital corpsman can qualify for advancement in rating. Promotion in the hospital corps is assured for the man who will study, observe, learn, and work in the field of his duty. Promotion has been perhaps somewhat more rapid in other branches where the best material may be advanced first and trained afterwards, but the work of the hospital corps is done for and upon human beings, where a mistake in dosage or in the administration of a first-aid measure might have serious consequences. The intelligent and efficient hospital corpsman is an important factor in maintaining the morale of the crew, and in helping to completely liberate their willingness to fight and work. There is plenty of opportunity for promotion in the hospital corps at this time. Four or five times the present number of pharmacist's mates, first class, are needed and will be advanced as soon as sufficient time has elapsed to enable them to qualify. Nearly twice the number of chief pharmacist's mates are needed for ships large and small and for naval hospitals, etc.

Every hospital corpsman, prior to advancement in rating, is given a careful examination by a board of medical officers. Recently the examination report has been modified in such a way as to give more weight to the man's actual experience and temperament without in any way lessening the importance of his mental and professional examination. It is not merely the ability of the candidate to answer questions that determines his fitness for advancement. He must be able to demonstrate to the board prior to advancement to the upper ratings that he can be trusted to do things correctly in a medical or surgical emergency, and to carry out first-aid measures properly until a medical officer can be reached. For those who qualify in upper ratings, and who in addition learn the clerical, commissary, and property-accounting requirements of a naval hospital, and who have a good knowledge of pharmacy and an ability to instruct junior hospital corpsmen there is ample opportunity for promotion to the warrant grade of pharmacist.

Before the war there were 23 chief pharmacists and pharmacists on the active list; now there are 269 pharmacists and chief pharmacists, both temporary and permanent, on the active list, and 4 retired who have returned to active duty, making a total on active duty of 273. Each month a few are becoming qualified and are being appointed to this warrant grade as the needs of the Navy grow. Among the 269 pharmacists, 82 are permanent chief pharmacists or pharmacists, all of whom have passed a difficult competitive statutory examination, prior to being made permanent pharmacists of the

Navy. As a recognition of the value of these officers they were given temporary commissions in the medical corps as temporary assistant surgeons, there being no commissioned rank in the hospital corps itself other than the commissioned grade of chief pharmacist, which during the past year could not legally be given until after six years of service in the grade of permanent pharmacist. These permanent pharmacists thus temporarily commissioned constitute a group in the Navy somewhat comparable to the Sanitary Corps of the Army. The granting of a temporary commission has brought a degree of contentment and a sense of deserved recognition resulting in a better and wider opportunity for the deployment of their ability and knowledge in the Medical Department of the Navy. Their duties are, of course, limited to a special field, just as the musicians, chemists, lawyers, and other persons of value to the Navy, who have been commissioned ensign, lieutenant, etc., are detailed to duty in the Navy, where their special knowledge and ability is of most value.

Hospital corpsmen are transferred from ship to station and from station to ship by the Bureau of Navigation upon the recommendation of the Bureau of Medicine and Surgery. Before the war the men of this corps to be transferred were usually specified by name, now they are moved like all other members of the enlisted personnel, by rating. Before the war, the Bureau of Navigation controlled practically every transfer from Washington; now large authority for transfers of enlisted personnel has been delegated to commandants of the naval districts. Before the war, transfers of hospital corpsmen occurred, on the average, not oftener than once in a six-month period; since the war, transfers have been very much more rapid. The great enlargement of the hospital corps, changes in the method of transfer, and the delegation of wide authority to commandants of districts at a time when many new stations, hospitals, and ships were being commissioned, and when training was being speeded up, made it difficult for a time for the bureau to keep its men properly distributed. However, the changed conditions have been met and many of the difficulties overcome without undue disturbance, and with what seems to be as certain a knowledge of, and as definite a control over, the distribution of the corps in the service as is needed by the Bureau of Medicine and Surgery to insure its supervision over the professional competency of these men.

The total authorized enlisted strength of the Navy and Marine Corps is, by law, the basis upon which a computation of the total authorized complement of the hospital corps is made. The law of August 29, 1916, fixes the authorized complement of the Hospital Corps of the Navy at  $3\frac{1}{2}$  per cent of the authorized enlisted strength of the Navy and Marine Corps. A recent legal clarification of the meaning of "authorized enlisted strength" has in effect reduced the size of the factor upon which the complement of the hospital corps depends because in this recent definition the words "authorized enlisted strength" are said not to include "the Hospital Corps, apprentice seamen, those sentenced by court-martial to discharge, those detailed for duty with the Naval Militia, those furloughed without pay, enlisted men of the Flying Corps, and those under instruction in trade schools." In order that the  $3\frac{1}{2}$  per cent may be distributed in a

proper proportion to meet the needs of the service, both ashore and afloat, and to keep enough in excess of actual needs for training purposes, a few simple rules have been formulated for the determination of what constitutes a normal hospital corps complement for an active unit of naval and Marine Corps personnel. For instance, the following rules have been found useful:

One hospital corpsman for each five patients in a naval hospital.

One hospital corpsman for every three beds for patients on a hospital ship.

One pharmacist's mate, first class, or chief pharmacist's mate, for a unit of about 100 persons serving on a ship or at a station where no medical officer is regularly attached.

One one-third hospital corpsman for every 100 persons in the naval complement of a naval vessel or station, or in the complement of a unit of the United States Marine Corps or Naval Flying Corps.

These rules have proved their value except in a few instances where special medical conditions have made exceptions to the rule necessary.

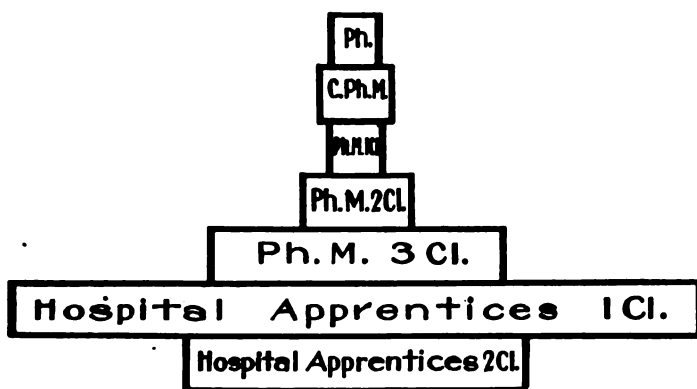
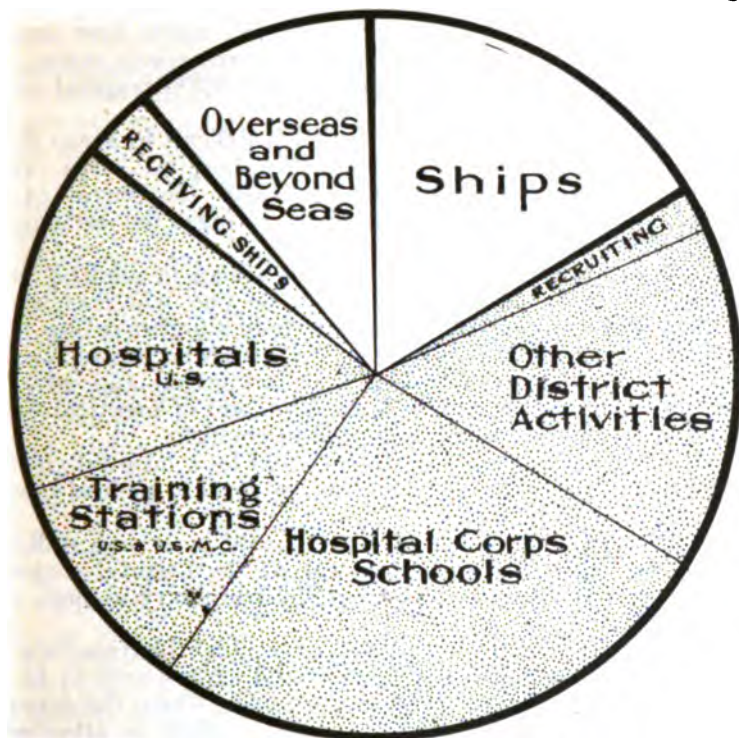
An estimate of the distribution of the hospital corps on July 1, 1918, showed that nearly two-thirds of the entire corps were on shore in the United States, over half of whom were in training to meet the needs of the coming winter and spring. The method of transfer by rating rather than by name, together with the difficulties created by censorship and the necessity for a degree of secrecy in relation to the movements of vessels, has increased the number of men of all enlisted ratings who are "standing by" on receiving ships, and the hospital corps has been no exception to the rule.

In order that these men may not waste their time on a receiving ship while awaiting transfer to a ship or station, an endeavor has been made to take instruction and training to them while awaiting transfer. Of the 14,718 men who made up the total of the hospital corps on July 1, 1918, 1,220 are medical and dental students who were allowed to enroll in the Hospital Corps Reserve Force for inactive duty in order that they might be for a time exempt from military service, so as to complete their medical or dental studies and in that way bring about a conservation of the Nation's future supply for the medical profession in conformity with the provisions of the selective-service law. All of the remainder, 13,498, were enlisted or enrolled for active duty, and are on duty at this time. Of these the following is the distribution by branch of the service:

United States Navy	9, 659
United States Naval Reserve Force	3, 839

Of those for the Regular Establishment 7,368 were enlisted for a period of four years; 2,291 for the period of the war. Of the United States Naval Reserve Force 66 were members of the old Fleet Naval Reserve, now class 1; 326 were National Naval Volunteers by recent legislation transferred to the Naval Reserve Force, class 2; and the remainder, 3,447, are members of the largest and latest class of reservists designated as class 4 for the general service. A study of the distribution of the hospital corps by ratings on July 1, 1918, shows that the medical and dental students were all enrolled as hospital apprentices, first class, and that they can advance in rating only when called to active duty, and then only after demonstrating

# Distribution of The Hospital Corps U.S.Navy.



ability for hospital corps ratings by passing the examinations, both practical and written, that are required for all members of the hospital corps. Those enrolled and enlisted for active service were distributed approximately by rating as follows on that date: 273 pharmacists, commissioned and warrant (retired, active, and reserve); 598 chief pharmacist's mates; 500 pharmacist's mates, first class; 900 pharmacist's mates, second class; 2,500 pharmacist's mates, third class; 6,000 hospital apprentices, first class; 3,000 hospital apprentices, second class.

Many physicians from civil life found it difficult to grasp the significance of the different ratings in the hospital corps, and in order that they might more quickly appreciate the Bureau of Medicine and Surgery's standard for these ratings, the ratings were defined as follows:

"A hospital apprentice, second class, is a man in need of elementary hospital corps school instruction, or one who having been given elementary instruction is unable to hold a higher rating.

"A hospital apprentice, first class, is a man who has received elementary hospital corps schooling and instruction and who is in need of further careful, definite instruction and of practical work in the various duties which he is expected to perform.

"A pharmacist's mate, third class, should be a hospital corpsman sufficiently trained to be of immediate value to a medical officer in the sick bay of a naval vessel.

"A pharmacist's mate, second class, should be a man sufficiently trained to be capable of taking charge of the hospital corpsman's work on board a naval vessel during the temporary absence of the medical officer.

"A pharmacist's mate, first class, or a chief pharmacist's mate (acting), should be sufficiently trained and experienced to be a capable, dependable, efficient first-aid man, upon whom the commanding officer of a vessel to which no medical officer is attached can rely for assistance in the handling of minor medical and surgical emergencies and who can be trusted to take charge of the medical property and records of a naval vessel.

"A chief pharmacist's mate (permanent) should be not only so well trained that he is able to pass the comprehensive oral, practical, and written examination required, but he should in addition be one who has a particular fitness for the hospital corps. He should be a man who has the force of character necessary to control men and maintain discipline. He should have shown by his conduct a good example of subordination, courage, zeal, neatness, and attention to duty, and he should have convinced the medical officers with whom he is serving that he is capable of taking charge of hospital corpsmen at drills, of controlling their work, and planning details for their employment within the field expected of a chief petty officer."

A study of the outflow of the hospital corps during the past six months has shown that a good many men, in spite of the careful entrance restrictions, have, after entering the corps, left it. From January 1, 1918, to June 30, 1918, 4,215 men entered the corps and 982 men left it. The reasons for leaving the corps were as follows:

Expiration of four-year enlistment.....	147
Change of rate to other branches of the service.....	601
Other causes.....	234

Of the 147 who left by expiration of enlistment, 110, or 75 per cent, reenlisted. Of those who left for "other causes," 54 left to receive commissions or to be trained for commissions; 142 left for discharge, either medical, special, bad conduct, dishonorable or undesirable, etc.; 30 died; 6 were lost at sea; 2 were killed in action ashore.

A careful scrutiny of the large number who changed their rate to other branches was made because at first sight it seemed that so large a number of changes of rate might indicate that the method of first selection for the hospital corps was in need of revision. It is believed, however, that even so large a number of changes of rate is not abnormal and is really an indication of a healthful condition in the corps. Most of the men who changed their rate did so shortly after enlistment, and half of the 600 who left were men who had come into the hospital corps, not because they desired to serve in this branch, but because enlistments for the Navy in other branches was limited to a very small quota, and they saw in the open door of the hospital corps the only road to enlistment in the Navy. The Bureau of Medicine and Surgery has, during the year, without exception, followed a liberal policy for every request for change of rating to another branch and has given its favorable indorsement to every request for change of rate, in the belief that those who were not fitted for the corps might be better adapted for another branch. To get rid of the misfits would increase, not only contentment in the hospital corps, but efficiency in the Navy. The man who graduates from the elementary hospital corps school, who stays in the corps until he leaves the hospital for sea, seldom leaves for another branch, because by that time he has learned enough about the care of the sick and injured to gain an insight into the character of the corps. Before he has had time to learn the duties of the hospital corps, he may restlessly seek the more easy and rapid advancement of another branch, especially if he has abilities, acquired in civil life, that will make advancement in another rating more easy. For instance, the typewriter and stenographer, or a man with a business clerical training, will seek to enter the yeoman branch and will not take time to learn to be a hospital corpsman; the mechanic will leave to become a machinist's mate, or to enter an aviation rating. The young man, however, who has a good grammar or high-school education, who is desirous of improving himself while in the Navy, who perhaps has no special abilities acquired in civil life, and especially he who contemplates upon return to his home a study of pharmacy, dentistry, medicine, etc., stays in the hospital corps, and will find experience and knowledge gained in it to his advantage in undertaking later studies or vocations. While there are, because of the influence of the selective service law, a few pharmacists, chemists, druggists, embalmers, X-ray technicians, bacteriologists, opticians, etc., in the hospital corps, their presence in it is due to the fact that they feel that in the hospital corps they will be able to learn how to care for the sick and injured, and in that way keep somewhat in touch with the medical profession, to which profession they were allied in civil life, because of their special qualifications.

The Bureau of Medicine and Surgery has, during the past year, published and sent to each hospital corpsman, once a quarter, a pamphlet entitled, "Supplement to the United States Naval Medical

Bulletin." The object of this publication is to enable the bureau to maintain a point of contact with every hospital corpsman and thereby engage his interest, to broaden the field of his vision, and to interest him in the variety of work being carried on by the members of his corps. It is a direct vehicle of instruction for the bureau and through its pages members of the nurse corps, dentists, doctors, pharmacists, and hospital corpsmen may talk to one another, make suggestions, and tell of ways and means to increase efficiency.

For the naval pharmacists, the leading members of the hospital corps, the Bureau of Medicine and Surgery has carried on a correspondence course, the object of which is to place before the pharmacist problems that are presenting, or might present, themselves in their special field throughout the service. From the written answers to each question sent in by the pharmacists, the best have been selected, published, and sent to all who took the course, so that, though widely scattered throughout the service, each member of this group has been given the opportunity to learn from the combined experiences of all.

It would be a serious omission to conclude this review of the hospital corps in 1917-18 without an allusion to the heroism of the members of this corps who are ashore in France. The Navy medical officers under whom they are serving have testified again and again to their courage and faithfulness. These men have endured hunger, fatigue, and cold without a murmur and cheerfully faced not only the fire that reached the trenches but that from the machine guns playing upon them in the open as they followed the attacking wave to pick up the wounded.

#### HOSPITAL CORPS SCHOOLS.

There are four regularly established hospital corps schools, one at each of the four principal naval-training stations.

School.	Normal capacity.	Average emergency capacity.	Greatest number at any one time.
Newport, R. I.....	250	500	900
Great Lakes, Ill.....	300	1,500	2,200
San Francisco, Cal.....	250	500	900
Hampton Roads, Va.....	300	300	300

The instruction is given by the medical officer in charge, a staff of two medical officers, five pharmacists, and ten or more assistant instructors, the last selected from the graduates of the school itself. The medical officers in charge at the various schools during the period covered by this report were: Commander Paul R. Stalnaker, Medical Corps, United States Navy; Commander John B. Kaufman, Medical Corps, United States Navy; Lieutenant Commander W. H. Halsey, Medical Corps, United States Navy; Lieutenant Commander John Buckley, Medical Corps, United States Navy. The Bureau of Medicine and Surgery had received from civilian sources, many



offers of assistance in the training of hospital corpsmen. Of these the following have been definitely accepted and utilized: Medical and dental schools at the University of Minneapolis, with a four-months' course for 100 men (400 in all to date); College of Pharmacy, Columbia University, New York, giving a six weeks' course for 300 men; Philadelphia College of Pharmacy, giving three months' course for 150 men. Other civilian schools, hospitals, clinics, out-patient departments, and individuals have offered assistance which in many cases has been accepted and utilized to great advantage.

#### **SPECIAL MEDICAL REPRESENTATIVES IN THE WAR ZONE.**

Commander E. Thompson, Medical Corps, United States Navy, is stationed in London, as the bureau's representative at the American Embassy and to establish contact between the medical activities in waters adjacent to the British Isles and those operating ashore. He has kept the bureau in touch with the progress of military and naval medicine in Great Britain and in addition exercises supervisory control of our hospital facilities in London.

In France Lieutenant Commander R. G. Le Conte, Medical Corps, United States Naval Reserve Force, of the unit attached to the United States Naval Hospital, Brest, has, in addition to his duties there, been able to travel widely throughout the country, visiting military hospitals and the battle front and interviewing surgeons of prominence in order to report the latest developments in the care and treatment of the wounded. In July, 1918, on an occasion of great need, Lieut. Commander Le Conte and 11 members of his unit responded to telegraphic request for assistance and reported promptly for temporary duty at the American Ambulance, Neuilly, relieving members of the overworked staff of that institution and operating on hundreds of cases fresh from the battle line, the patients being exclusively from the members of the American Expeditionary Forces. Grateful acknowledgement of the services rendered was made by the commanding officer of the American Ambulance.

Lieutenant Commander W. S. Bainbridge, Medical Corps, United States Naval Reserve Force, while on temporary duty in France, collected and arranged a mass of valuable medical information which is being utilized in the instruction of naval medical officers and in the operation work undertaken in our hospitals.

Commander S. S. Rodman, Medical Corps, United States Navy, was detailed for duty at Gibraltar, a rallying point for ships serving in the Mediterranean, to maintain contact with Navy patients cared for in British institutions ashore and to conduct a dispensary service which should divert from crowded hospitals minor cases requiring only brief rest and treatment. As noted elsewhere a 50-bed hospital has been established at this place.

Recently Commander J. F. Murphy, Medical Corps, United States Navy, and Commander R. G. Heiner, Medical Corps, United States Navy, have been detailed to ports in France to assist in the handling of Army patients embarking in Navy transports.

In another part of this report are to be found the names of those whose devotion to duty under circumstances that try men's souls and put to the severest test the sense of duty and the love of country has

brought them to special notice and distinction. It is fitting, however, under the caption that heads these paragraphs to bestow a word of commendation on the officers who have so worthily represented the bureau, the medical corps, and the Navy in the trenches. The 47 medical officers and the 30 dental officers serving with the marines in France have in every instance done their full duty by the sick and wounded and they have been heroically seconded by the members of the hospital corps accompanying them. Conspicuously beautiful among so many heroic deeds was the conduct of the late Dental Surgeon W. E. Osborne, United States Navy, who deliberately gave his life for another on the field of battle, though the nature of his professional duties gave him every justification for remaining at the rear. Our medical officers have not been satisfied to remain ensconced at first-aid stations in trench and dugout, but have gone over the top with the men, cheering and encouraging them, and have led the way in person to search for the wounded and succor them.

#### SPECIAL DETAILS.

Rear Admirals W. C. Braisted and C. T. Grayson, Medical Corps, United States Navy, have served as members of the executive committee of the General Medical Board, Council of National Defense. Rear Admiral E. R. Stitt and Commander H. F. Strine, Medical Corps, United States Navy, were authorized to attend a meeting of the National Board of Medical Examiners, January 9 to 17, inclusive, New York, N. Y. Captain G. A. Lung, Medical Corps, United States Navy, was authorized to represent the Medical Department of the Navy at the annual meeting of the Association of Military Surgeons of the United States, at the training camp for medical officers, Fort Benjamin Harrison, Ind., October 8 to 10, 1917. Captain T. W. Richards, Medical Corps, United States Navy, has served as secretary of the committee on standardization of medical and surgical supplies and equipment, General Medical Board, Council of National Defense. Commander R. C. Holcomb, Medical Corps, United States Navy, has served on the subcommittee on venereal diseases of the Committee on Hygiene and Sanitation. Surgeon H. S. Cumming, United States Public Health Service, attached to the Bureau of Medicine and Surgery, Navy Department, Washington, D. C., has served on the committee for civilian cooperation in combatting venereal diseases. Commander R. C. Ransdell, Medical Corps, United States Navy, has served on the Committee on Hygiene and Sanitation. Commander G. B. Tribble, Medical Corps, United States Navy, has served on the otology, rhinology, and laryngology subcommittee of the Committee on Surgery. Lieutenant Commander W. E. Eaton, Medical Corps, United States Navy, represented the bureau on the Priority Board of the Navy Department; also represented the bureau on the general hospital committee formed by the American College of Surgeons for hospital standardization program, December 8 and 9, 1917, Washington, D. C., and in conferences regarding rehabilitation and vocational education (see p. 32).

The work of the members of the United States Public Health Service detailed to duty with the Medical Department of the Navy in the capacity of sanitary advisers of the commandants of naval districts and their medical aides and as inspectors of yards and sta-

tions and adjacent territory has been satisfactory in the extreme. Their experience and special training qualified them to perform this important work in a thoroughly efficient manner and they have one and all displayed most commendable energy and ability.

I wish to bring to your attention, in this connection, a matter which I think has no small significance and involves a radical change from the common view-point of earlier years. It is interesting to consider the effect of our large training camps and stations upon the life of neighboring communities. There used to be a disposition to regard the proximity of such camps and barracks as a possible menace to health and happiness. To-day, I believe, it will be conceded that the only menace is to the barroom and the brothel and to the unsanitary practices still far too prevalent in many sections of our country. People are beginning to realize that wherever we put our men we endeavor to improve the conditions under which they live, and, as these conditions involve or are dependent on the drainage, sewerage, garbage disposal, and water supply of near-by towns, efficiency in these important details often has to be increased in order to conform to the Navy standard. In the neighborhood of our camps flies and mosquitoes are exterminated and smallpox and typhoid fever are eliminated from our personnel. There has been no attempt and no desire to infringe on individual rights or to interfere with existing agencies, such as local and State boards of health, but the cooperation of these bodies has been sought and often their activities have been increased because the methods and results of Navy sanitarians have helped to create that public sentiment indispensable to reform. Our own sanitary inspectors and the officials of the United States Public Health Service working with the Navy at present often bring to light a situation not previously appreciated, and they unite with the civil authorities in correcting it.

In a number of instances the medical officer of a training camp or station has been invested with special powers by the chief health officer of town or State, thus enabling him to invoke the power of the law against those who, through ignorance or in their thirst for gain, disregard cleanliness and decency. It has sometimes happened that a small town has lacked the financial ability to inaugurate modern methods and the advent of the Navy has made larger disbursements possible. Again, there has been the incentive of patriotism. As more specific instances, may be cited the inspection of meat, milk and ice-cream, fruit, and cake offered for sale to our men, and again, in certain localities it has been necessary to inspect eating houses patronized by our men and the places where the food for them was prepared. The indirect benefit to civilians from steps of this kind can readily be appreciated. It is not always desirable to forbid the frequenting of eating houses and hotels which do not come up to the proper standard of cleanliness, but they can be classified and numbered according to their deserts and their relative standing can be made known to the enlisted personnel, who may usually be depended upon to patronize the best within their reach. In certain localities, purposely not named, where toilet facilities were primitive and the disposal of sewage and garbage was wholly inadequate, pressure has been brought to bear on the proper authorities and has induced a marked change for the better.

It should be said, too, that our medical officers, by the methods they put into operation and the standards they maintain in the field of preventive medicine, are doing an educational work for the country at large. The sailor who has been protected from smallpox and typhoid fever by appropriate treatment; who has learned of the danger of droplet infection through promiscuous spitting, coughing, and sneezing; who has learned the importance of washing his hands before meals and of avoiding the use of other people's toilet articles; who has had regular and constant instruction in details of personal hygiene returns to his home and becomes a disseminator of information and helps to break down prejudice against sanitary innovations and the newest health requirements.

In connection with the selection and special training of officers and men in the medical, dental, and hospital corps, and in matters of sanitary reform the faculties of colleges and schools, the boards of control of hospitals, local and State boards of health, and many private individuals have well illustrated and exemplified in themselves the lively patriotism with which the whole country is participating in the prosecution of the war.

#### SPECIAL INVESTIGATIONS.

AVIATION, GAS DEFENSE, SUBMARINE VENTILATION, ETC.—The special research conducted directly by the bureau has been restricted to those fields in which the Navy has a vital interest. Gas warfare, especially its defensive side, the ventilation of submarines and the type of food best suited for men serving on them, the standard of physical requirements in aviators and other matters relating to the personnel of aviation, ear protection, both for aviators and gunners, and the illumination of the midshipmen's quarters at the Naval Academy have been studied extensively and valuable data have been obtained. Early in 1917 Lieutenant E. F. Du Bois, Medical Corps, United States Naval Reserve Force, was ordered to duty in the bureau for the purpose of collecting information in regard to the various defensive measures against the poisonous gases used in modern warfare and to study the pathology and treatment of gas poisoning. Under his direction a course of instruction was begun at the Naval Medical School covering all phases of this subject. Lieutenant G. H. Mankin, Medical Corps, United States Navy, and Lieutenant G. M. Mackenzie, Medical Corps, United States Naval Reserve Force, were assigned to duty as his assistants.

Instruction was given to 20 commissioned line officers, 14 commissioned marine officers, 30 noncommissioned officers, and 11 hospital corpsmen of the Navy, as well as to medical officers. The average duration of the course was one week and it included practical demonstration in a specially constructed gassing chamber and training in the use of appropriate masks and other defensive measures. The classes were given an opportunity to visit model trench systems, dugouts, shelters, and gun placements at the engineer training camp of the American University Experiment Station, Washington, D. C., and some of the classes were afforded the further opportunity to spend several days at the Marine Training Camp, Quantico, Va., and study the practical side of gas defense in the field. The pupils

returned to their several ships and stations and instituted similar courses of instruction. On the ships of the fleet gas-defense training is carried out by division officers under the direction of the gunnery officer, who, by virtue of his official position, is the gas officer and is held responsible for any deficiency in the gas warfare, both offensive and defensive, of his ship.

The curriculum of the Naval Medical School now includes a regular course of training in gas defense, and 130 medical officers have already received this instruction.

In addition to the medical officers already mentioned, Lieutenants E. R. Noyes and Frederick G. Speidel, Medical Corps, United States Navy, belong to the teaching force at the school, the former lecturing on the chemistry of gas warfare, the latter conducting the gas-mask drills.

In April, 1918, Lieutenant G. M. Mackenzie, Medical Corps, United States Naval Reserve Force, was ordered abroad for the purpose of studying cases of gas poisoning at the front and to collect all available information with regard to gas defense and the ventilation of submarines. After a visit to the front and an observation of battle-field conditions he has returned to the bureau and contributed valuable additions to our knowledge of the pathology and treatment of gas poisoning.

The service at large has been kept informed of the progress and development of gas warfare and appropriate defensive measures by the issue of frequent confidential circulars covering every phase of gas warfare. A list of over 200 published articles on gas warfare with a short note on each; description of the standard Navy gassing chamber; the subject of masks, alarms, defense tactics; the chemistry of gas warfare; the pathology and treatment of poisoning by gas are among the topics discussed in these circulars.

Other confidential circulars for medical officers of the service have pertained to various phases of aviation, such as the causes of accidents, the effect of high altitudes, and the bibliography of the medical side of aviation. The aviator is exposed to such a diversity of rapidly changing conditions in his daily work that special care and thought are necessary on the part of the examining medical officer to select only those who are capable of thorough adaptation to these conditions. The bureau has endeavored to have on duty with aviation units, both here and abroad, medical officers fully acquainted with all the recent developments in the field of aviation which are of importance from a medical standpoint.

Lieutenants R. P. Parsons, Medical Corps, United States Navy, and L. H. Segar, Medical Corps, United States Naval Reserve Force, on duty with the Naval Aviation Detachment, at Cambridge, Mass., are doing valuable experimental work in connection with the psychology and with the physical aspects of aviation. These officers, as well as Commander R. A. Bachmann, Medical Corps, United States Navy, have written valuable papers on the selection of candidates for aviation. Lieutenant Du Bois has been working in conjunction with the Bureau of Construction and Repair with regard to the purification of air in submarines. Much of this work has been carried on under actual cruising conditions aboard submarines on patrol at sea and at a submarine base, and his recommendations will contribute

greatly to improve health conditions for officers and men assigned to submarine duty.

Extensive experiments have been carried out at the Naval Medical School with regard to the fireproofing of clothing for those exposed to the flames of burning gunpowder, bursting projectiles, etc., and suitable recommendations have been made on this subject.

Lieutenant Commander G. B. Tribble, Medical Corps, United States Navy, has made extensive studies of the difficult question of suitable illumination for midshipmen's quarters at the Naval Academy and has made valuable suggestions regarding ear protection for aviators and gunners. Steps are being taken to ascertain the value of a new ear protector under the test of actual service.

The recently completed laboratory of naval hygiene at the Naval Medical School is to be used as a laboratory for gas investigation and gas analysis in connection with submarine ventilation and other kindred matters. Facilities are afforded for battery examinations and tests, ventilation experiments, gas-mask tests, and studies in connection with the pathology of war-gas poisoning.

Lieutenant Commander W. L. Mann, Medical Corps, United States Navy, has done work of great value at the Marine Barracks, Quantico, Va., in connection with field sanitation for troops, writing papers on this topic for the bureau's publications, and instructing medical officers and hospital corpsmen preparing for service in the field abroad.

**PSYCHIATRIC RESEARCH.**—One or more medical officers of special training and experience in psychiatry have been assigned to the principal naval training stations to assist in weeding out the recruits, who by reason of latent insanity or mental inferiority would sooner or later inevitably prove unfit for military service, though they may have passed successfully the physical examinations conducted at the recruiting offices. The work of these medical officers has been of great value and their reports when complete will furnish important data for study and further research. To give some idea of the nature and extent of this work and what has been accomplished, the following facts are set forth:

At the Newport Training Station the subjects examined have varied from 800 to 4,000 in a month. Among 866 recruits interviewed during January, 1918, 16 defectives were discovered belonging to the following categories:

Constitutional inferiority.....	3
Epilepsy .....	1
Hypochondriasis.....	2
Hysteria .....	1
Imbecility .....	2
Neurasthenia .....	2
Stammering .....	1
Chronic morphine habitué.....	1
Dementia praecox.....	2
Manic-depressive psychosis.....	1

The last four cases were transferred to hospital for treatment preliminary to final disposition.

Visits are made periodically to the hospital. During January, 9 cases were recognized as follows:

Constitutional inferiority.....	1
Dementia praecox.....	2
Gastric neurosis.....	1
Manic-depressive psychosis.....	3
Undiagnosed.....	2

During the conduct of "mast"<sup>1</sup> three offenders were selected for examination. One man charged with lying was found to be a case of constitutional inferiority. A man reported for being absent without leave and again absent overtime proved to be constitutionally inferior and a victim of the morphine habit. A third offender reported for striking a petty officer and using obscene language was a moron.

All doubtful cases are marked "follow up" on the records and are carefully watched throughout the period of training. The company commanders submit reports as to efficiency. If men prove unable to grasp the simple details of training or show abnormal tendencies of any kind they are reexamined and liable to discharge from the service.

*Naval Training Camp, San Diego, Cal.*—The neurological and psychiatric examination of recruits was begun February 15, 1918. In the course of 44 days 309 men were studied and 22 were invalided from the service on account of nervous or mental disease. At the first interview about six minutes is devoted to each recruit. The history, attainments, school, and social career is rapidly reviewed to gain a knowledge of the previous conduct of the individual. A test of the reflexes and of stability and a general physical examination forms the basis of the first judgment by which a man is placed in group 1, normal, or 2, abnormal. Those in group 1 are outfitted with clothing and begin their training. Members of group 2 are subjected to more searching investigation and eventually are assigned to group 1 or definitely classified as neurotic or psychopathic.

*Naval Operating Base, Hampton Roads, Va.*—The head of the psychiatric division divides his time between the St. Helena Training Station (3 days), the Hampton Roads Station (2 days), and the United States Naval Hospital, Norfolk, Va. (2 days).

All cases of mental abnormality are surveyed and go to the hospital for further transfer to St. Elizabeths, Washington, D. C., or are returned to their homes, depending on whether they require institutional care and threaten danger to the community or are harmless.

Commanding, regimental, and company officers, medical officers, and others have been requested to note and report all abnormalities of character or conduct, as shown by resentfulness to discipline, unusual stupidity or awkwardness at drills, inability to transmit messages correctly, personal uncleanness, defacing of property, bad language, criminal tendencies, femininism, unusual irritability, shyness, excessive homesickness, etc.

The original examination on arrival or in connection with trial for petty offenses is brief, but followed if necessary by another covering from one to several hours. Then all data from records and reports are analyzed until every detail of personal and family history and a full picture of the case is obtained.

<sup>1</sup> "Mast" is the term used at sea to designate the informal court held by the commanding officer before which petty offences are tried or more serious cases receive a preliminary hearing.

Between August 1, 1917, and December 31, 1917, 363 cases of suspected abnormality yielded 191 cases for survey, classified as follows:

Apoplexy	1
Constitutional inferiority	34
Constitutional psychopathic state	14
Dementia paralytica	5
Dementia praecox	9
Epilepsy	36
Epilepsy, Jacksonian	1
Hemiplegia	1
Hysteria	9
Imbecility	21
Malingering	7
Migraine	1
Neurasthenia	9
Neuritis, multiple	1
Neurosis, occupational	4
Nystagmus	1
Paralysis agitans	2
Paralysis of nerve	1
Paranoia	4
Psychasthenia	13
Psychosis, hysterical	1
Psychosis, intoxication	1
Psychosis, manic-depressive	9
Psychosis, traumatic	1
Sclerosis, lateral	1
Senility	1
Stammering	3
Under observation	40

*Naval Training Station, San Francisco, Cal.*—During February, 1918, 440 men were given a preliminary examination on arrival and 42 were required to report for more exhaustive study. Of these 7 showed evidence of mental disease as follows:

Epilepsy	1
Feeble-minded	4
Graves' disease	1
Intoxication psychosis	1

Of the first 1,000 men examined at the station 172 required further study, and of these 55 were found defective in greater or less degree, as follows:

Chronic alcoholic	2
Defective delinquent	1
Enuresis	2
Epileptic	3
Feeble-minded	18
Graves' disease	17
Psychoneurotic	9
Psychotic	2
Stammerer	1

The percentage of feeble-minded is lower than the average because of the large number of hospital apprentices and landsmen for yeomen recruits in this group. Also the percentage of goiters is rather high on account of several large drafts from Washington and Oregon. These goiters seem to be of the simple nontoxic type.



The service and health records of the feeble-minded are being followed, with a view to determining more exactly the status of the imbecile in the naval service.

The psychiatrists follow carefully all cases reported for infraction of regulations and all cases coming to trial by summary or general court-martial. Besides this, "intelligence" or "efficiency" tests are applied to various groups of the personnel of the station with a view to selecting suitable men for different types of work.

*Naval Training Station, Great Lakes, Ill.*—This station by reason of its size (20,000 to 30,000 recruits) affords the widest and most interesting field for psychiatric research. The work was begun July, 1917, and by the end of the year 6,604 recruits had been examined. The positively psychopathic cases discovered may be grouped thus:

		Per cent.
Constitutional inferiority .....	43	24
Epilepsy .....	21	12
Imbecility .....	49	28
Psychopaths .....	18	7
Psychoses, all other forms .....	51	29
	177	100

Of the 51 insane there were:

Angiospastic edema .....	1
Chorea .....	1
Dementia, cause unknown .....	2
Dementia praecox .....	12
Dipsomania .....	1
Exhaustive, infective, and toxic psychosis .....	3
Hysteria .....	5
Intoxication psychosis .....	3
Intracranial injury .....	1
Manic-depressive insanity .....	9
Neurasthenia .....	2
Organic brain disease .....	6
Paranoid state .....	1
Paresis .....	2
Psychasthenia .....	1
Traumatic psychosis .....	1

51

Because of poor work in the routine intelligence tests offered to 6,604 men 1,229 men were given prolonged examination. Of these 86 were found to belong to the psychopathic class, as follows:

Constitutional inferiority .....	25
Epilepsy .....	14
Imbecility .....	88
Psychopaths .....	4
Psychoses, all forms .....	5

*U. S. Naval Training Station, Great Lakes, Illinois, Psychiatric Unit.*

[Statistics covering July 1 to December 31, 1917.]

Diagnosis.	Source.							
	20 per cent of 1,229 cases.	Mail: of 65 cases.	Line: of 76 cases.	Medical: of 47 cases.	Total.	Per cent of preliminary examinations.	Per cent of exhaustive examinations.	Per cent of positive P-path.
Imbecility.....	38	6	1	4	49	0.729	3.46	27.69
Constitutional inferiority.....	25	8	4	6	43	0.640	3.03	24.29
Psychosis, epileptic.....	14	2	2	3	21	0.313	1.47	11.85
Constitutional psychopathic state.....	4	2	5	2	13	0.184	0.91	7.34
Psychosis, etc., all other forms, as follows.....	5	13	21	12	51	0.200	2.43	28.55
Dementia praecox.....	2	4	5	1	12	0.178	0.84	6.71
Manic-depressive.....	0	3	4	2	9	0.133	0.63	5.08
Organic brain disease.....	0	0	4	2	6	0.089	0.42	3.35
Hysterical.....	0	0	2	3	5	0.074	0.35	2.82
Exhaustive, infective, toxic.....	2	0	1	0	3	0.044	0.21	1.69
Intoxication.....	0	3	0	0	3	0.044	0.21	1.69
Neurasthenia.....	0	0	1	1	2	0.030	0.14	1.13
Dementia, cause unknown.....	0	2	0	0	2	0.030	0.14	1.13
Dementia paralytica.....	0	0	0	2	2	0.030	0.14	1.13
Paranoid state.....	0	0	1	0	1	0.014	0.07	0.56
Psychasthenia.....	0	0	1	0	1	0.014	0.07	0.56
Traumatic.....	0	1	0	0	1	0.014	0.07	0.56
Dipsomania.....	1	0	0	0	1	0.014	0.07	0.56
Chorea.....	0	0	1	0	1	0.014	0.07	0.56
Angiospastic edema.....	0	0	1	0	1	0.014	0.07	0.56
Intracranial injury.....	0	0	0	1	1	0.014	0.07	0.56
Not mentally abnormal.....	1,143	34	43	20	1,240	97.414	87.50	.....
Total.....	1,229	65	76	47	1,417	99.480	99.80	99.72

**REHABILITATION AND REEDUCATION OF THE WOUNDED.**

Arrangements have been made with the medical department of the Army by which such Navy patients as may require vocational training, rehabilitation, reconstruction, the fitting of artificial limbs or surgical preparation therefor, may be received at one of the special hospitals conducted by the Army for the treatment of cases of this type. Information to this effect and specific instructions as to the proper procedure to obtain the admission of a Navy patient at these Army hospitals have been sent to all naval medical officers liable to have under their charge men who need treatment along these lines.

The bureau has studied very thoroughly the large and important question of rehabilitation and reeducation of the wounded as it concerns victims of the disasters of war belonging to the Navy and Marine Corps. Inasmuch as we naturally anticipate that the demands upon us for this type of service will be far less than those which the Army must meet it seemed the part of wisdom and economy not to multiply agencies or scatter in many small groups the talent available for this work. On the contrary a concentration in large establishments seemed to promise better results for both services. By sending our relatively small number of cases to Army rehabilitation hospitals we shall not have to divide the force of technical experts, which is none too large, and, on the other hand, our men may be expected to develop a sense of emulation and be stimulated to ambitious effort through associations with large numbers of those in similar plight.

Lieutenant Commander W. E. Eaton, Medical Corps, United States Navy, has represented the bureau in numerous conferences with the office of the Surgeon General of the Army, the War Risk Insurance Bureau, and the Federal Board for Vocational Education and representatives of various governmental and civilian bodies engaged in a study of the whole problem. This officer has shown great energy in helping to develop a program by which existing industrial establishments could be brought to cooperate with the military authorities and furnish a ready-made field for training. A committee of 15 members of the conference, Lieut. Commander Eaton being one of them, drew up a plan for congressional action. Later the War Risk Bureau and the Federal Board for Vocational Education each drew up and submitted bills prepared after the one devised by the conference committee. The result of these various efforts was the passage on June 27, 1918, of Public Bill No. 178, known as the Vocational Rehabilitation Act, which amended the War Risk Act (Public Bill No. 90, approved Oct. 16, 1917), repealing section 304 of said act and charging the Federal Board of Vocational Education with the duty of providing vocational training and employment to disabled men after discharge by the military and naval forces. (See page 80.)

#### AMERICAN RED CROSS.

In October, 1917, Lieutenant Commander W. E. Eaton, Medical Corps, United States Navy, relieved Captain T. W. Richards, Medical Corps, United States Navy, as the representative of the Bureau of Medicine and Surgery with the American Red Cross and has also carried on the work of organizing base hospital units, etc. Since April, 1918, 15 naval station units, each comprising 5 medical men and 15 nurses, and 3 base hospital units of 11 medical men and 60 nurses have been organized.

A large number of motor ambulances and passenger-carrying automobiles have been donated to the medical department of the Navy by the Red Cross or through its instrumentality.

Surgical dressings and hospital garments have been contributed by the Red Cross. This permitted our hospital corpsmen and female nurses to devote all their time and energy to nursing and other employment in which they could not be replaced.

During the winter of 1917-18 Mrs. Josephus Daniels organized and assumed the directorship of the Navy Department Auxiliary of the Red Cross. This organization has made a large quantity of surgical dressings and prepared hospital garments and linen, all of which were shipped to naval medical supply depots overseas or to ships of the Navy.

The Red Cross has served as a recruiting agency for women nurses and secured for us a considerable proportion of the nurses added to our roster this year.

Various welcome gifts have been made by the Red Cross to hospitals and hospital ships which add to the comfort, entertainment, and contentment of the patients. The recreation buildings put up at our various naval hospitals have been the source of much real benefit to the convalescents.

## COMMISSION ON TRAINING CAMP ACTIVITIES.

The Commission on Training Camp Activities, while concerned in the main with the larger and more accessible personnel of the Army, has done much to promote upright living in the Navy by disseminating information on the results of immorality and disease. Thus a campaign, which had its beginning within the Navy 15 years ago and was prosecuted with increasing vigor up to the present time, has been greatly enlarged and elaborated. By the end of the fiscal year 15 copies of the film entitled "Fit to Fight" had been put in circulation, of which 3 were permanently assigned to embarkation points and 2 were for circulation in the Navy. The pamphlet entitled "Live Straight If You Would Shoot Straight" has been liberally distributed to all naval establishments (35,200 copies). Various educational pamphlets, to the number of 82,800, have also been distributed. There is a stereomotorgraph for illustrating lectures in operation at each of 19 different naval establishments, and at 75 different naval establishments a total of 285 sets of exhibits have been displayed. The representatives of this commission have endeavored to cooperate with the medical officers of ships and stations in the fight for clean living, and the illustrated lectures, books and booklets, the moving picture films, and the stereomotorgraphs have undoubtedly succeeded in making a distinct impression upon the men. Lieutenant H. E. Kleinschmidt, Medical Corps, United States Navy, has been particularly active in this work.

## EMERGENCY HOSPITAL CONSTRUCTION.

The emergency hospital construction made necessary during 1916-17 to increase the facilities of our 18 regular establishments with their aggregate of 3,000 beds so that the demands of the war could be adequately met, was conducted in a conservative way. I endeavored to proceed carefully and economically, keeping just ahead of immediate requirements, though an ampler scale of erection and purchase of buildings, a more lavish expenditure of funds would have relieved me of a heavy burden of anxiety as the one personally responsible for providing sufficient hospital accommodation for every contingency.

The work done and the work being undertaken at the time of my last report was fully discussed therein. During 1917-18 the same policy has been followed and additional buildings have been brought to completion and still others begun. The following is a brief summary of work covered by contracts awarded in 1918.

*Chelsea, Mass.*—Fifteen (15) ward buildings, 2 hospital corps barracks, 2 subsistence buildings, and 1 laboratory, giving a total bed capacity of 600.

*New London, Conn.*—At the submarine base there was built a dispensary and sick bay, providing 50 beds.

*Brooklyn, N. Y.*—Four (4) hospital buildings, providing 272 beds. The construction at Brooklyn is of terra-cotta stuccoed and the floors are of reinforced concrete, making the buildings practically fireproof.

*Pelham Bay Park, N. Y.*—The original hospital, providing 250 beds, was abandoned upon the expansion of the training camp, and a new hospital was constructed, providing 750 beds.

*League Island, Philadelphia.*—Two (2) additional ward buildings were provided in addition to those constructed during the fiscal year 1917. The 2 additional wards provide for 75 beds.

*Cape May, N. J.*—There have been constructed 19 buildings, providing 100 beds.

*Annapolis, Md.*—Here 6 buildings were constructed, providing 103 beds. One of the buildings was a large subsistence building to provide messing accommodations to care for the whole hospital reservation. The kitchen and dining-room capacity of the original hospital was too small to care comfortably for the original layout.

*Washington, D. C.*—No extension has been made at Washington except that a temporary tent storage building has been provided and an addition has been made to the mess hall and kitchen of the original hospital.

*Norfolk, Va.*—A general storehouse was provided.

*Hampton Roads (Naval Operating Base), Va.*—Construction included 34 buildings, providing 250 beds.

*Charleston, S. C.*—Various additions were made to existing provision of 24 buildings, increasing the nurses' quarters and furnishing additional subsistence and laundry space.

*Paris Island, S. C.*—Seven (7) buildings were constructed, providing 96 beds.

*Pensacola, Fla.*—Officer of the day's quarters were provided.

*Key West, Fla.*—The Ruth Hargrove Seminary was acquired by the bureau, and the buildings have been remodeled and added to, providing 150 or more beds. The buildings, originally laid out for school purposes and quarters, were designed with ample porch space, which can be utilized to increase the bed capacity of the hospital.

*New Orleans, La.*—Buildings to the number of 19 were constructed, providing 200 beds.

*Gulfport, Miss.*—New buildings, 24 in number, were constructed providing 150 beds.

*Great Lakes, Ill.*—Forty (40) buildings were constructed, providing 1,300 beds.

*Mare Island, Cal.*—Thirteen (13) buildings were constructed, providing 550 beds.

*Puget Sound, Wash.*—Ten (10) buildings were constructed, providing 105 beds.

The construction referred to above has been in general of wood frame, one story in height.

In addition to the work mentioned above, for which contracts were awarded during the fiscal year 1918, the following work was designed and plans and specifications prepared:

*Portsmouth, N. H.*—Three (3) buildings, providing for 50 beds.

*Chelsea, Mass.*—Eight (8) buildings providing for 400 beds.

*Hingham, Mass.*—One (1) sick bay and dispensary providing for 100 beds.

*Newport, R. I.*—Twelve (12) buildings providing for 500 beds.

*New London, Conn.*—Six (6) buildings providing for 150 beds.

*Brooklyn, N. Y.*—Eight (8) buildings providing for 524 beds.

*Wards Island, N. Y.*—Twenty-one (21) buildings providing for 800 beds.

*League Island, Philadelphia.*—Fourteen (14) buildings providing for 500 beds.

*Gray's Ferry Road, Philadelphia.*—Fifteen (15) buildings providing for 300 beds.

*Cape May, N. J.*—Six (6) buildings providing for 100 beds.

*Quantico, Va.*—Nine (9) buildings providing for 300 beds.

*Norfolk, Va.*—Twenty-one (21) buildings providing for 900 beds.

*Hampton Roads, Va.*—Four (4) buildings providing for 500 beds.

*Charleston, S. C.*—Twelve (12) buildings providing for 515 beds.

*Paris Island, S. C.*—Three (3) buildings providing for 90 beds.

*Great Lakes, Ill.*—Three (8) buildings providing for 200 beds.

*Pearl Harbor, T. H.*—Three (3) buildings providing for 100 beds.

Since the war started a bed capacity of 12,000 has been provided and is in operation. Accommodations for about 5,000 more beds are either under construction or being designed. In all the work outlined above accommodations for the personnel of the hospital staff amounting to between 40 and 50 per cent additional of the bed capacity have been provided.

For overseas work the bureau sent 190 portable buildings for hospital use and has completed hospital groups at several foreign stations.

#### THE UNITED STATES NAVAL MEDICAL SCHOOL.

During the fiscal year 1918 three classes of medical officers passed through the school. In the class from July 24 to September 22, 1917, there were 62 members; in that from April 1 to May 4, 1918, 23 members; and that from May 13 to June 22, 1918, 29 members.

Since October, 1917, 100 enlisted men have been trained in bacteriological and clinical laboratory work. Their training has been along the most practical lines to enable them to assist in various laboratory procedures, such as sterilization and cleaning of glassware, preparation of media, making of stains, culturing and staining of organisms, blood counts and smears, examination of faeces for intestinal parasites and ova, serology, urinalysis, etc.

Sixteen enlisted men have been trained in clinical chemistry. They have been instructed in urinalysis, examination of gastric contents, water analysis, gas defense methods, examination of milk, etc. Four of the men have devoted their time to advanced organic and inorganic chemistry.

Five mobile laboratory units have been equipped to meet any emergency which might arise in case of epidemics at various naval stations or camps. The packing boxes for material are prepared so that they may be converted into desks, tables, and stools. From one to three medical officers and from four to ten men accompany each unit.

Owing to the introduction of poisonous gases in warfare it became necessary to study problems of this kind as they relate to the Navy. Many other hygienic problems have also developed which require much study. As much of this work was assigned to this school it was very quickly seen that the room and equipment available for the purpose were entirely inadequate. Because of this condition an addition approximately 20 x 45 feet, with two floors and basement, was made to the building. When this addition is fully equipped it will permit the investigation of many of the numerous problems in hygiene which are constantly arising within the Navy.

During the fiscal year there were received and filled by the Naval Medical School 192 requisitions for microscopical outfits and 247 microscopes were issued to ships and stations.

Examinations made by the clinical laboratory of sputum, blood, feces, throat cultures, etc., totaled 2,138. In addition to this 7,078 specimens of feces sent in from ships and stations were examined for hookworm. Six hundred and twenty-two, or 8.9 per cent were positive.

In the chemical laboratory in addition to the instruction incident to the school work there were made 3,834 analyses of various kinds. As the materials examined varied greatly in kind the analytical procedures ranged from simple tests to those of very intricate and exacting nature.

The following working scheme for the instruction undertaken for one of the classes gives a fair idea of the ground covered:

*May 13, 1918, to June 21, 1918.*

Hours a. m.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9 to 10.	Med. Dept. duties.	Bacteriological laboratory.	Chemical laboratory.	Bacteriological laboratory.	Chemical laboratory.	Gas defense.
10 to 11.	Naval hygiene.					
11 to 12.15.	Preventive medicine.					Med. Dept. duties.
Hours p. m.	Luncheon, 12.15 to 1.15.					
1.15 to 2.15.	Bacteriology.	Med. Dept. duties.	Ophthalmology and otology.	Surgery and roentgenology.	Preventive medicine.	Psychiatry.
2.15 to 4.30.	Drills and first aid.	Drills and first aid.			Drills and first aid.	

#### MEDICAL AND SURGICAL SUPPLIES.

While the bureau, prior to the declaration of war, April 6, 1917, had accumulated a reserve supply of medical stores to meet any emergency that might arise, it was obviously impossible to foresee the enormous expansion that has taken place in the Navy during the past year, particularly the increase in the number of new ships and stations with a total personnel approximating 500,000 men. The most trying features connected with the expeditious handling of medical supplies were the lack of proper storage space and the lack of facilities for handling the supplies received and reshipped. Similar difficulties presented themselves to other bureaus, and the congestion at the navy yard, New York, to say nothing of the port of New York as a whole, retarded the work of the supply depot considerably. The inadequate storage space and the lack of proper facilities for handling large quantities of supplies were felt by the supply depot in Brooklyn, even before war was declared, so that the largely increased

demands became a very serious problem for the time being, which was only successfully met by the energetic and whole-hearted efforts and help of those connected with the supply depot, including both the naval and civilian personnel.

This bureau had for some years sought authority to purchase land for the erection of a supply depot in Brooklyn, commensurate with the work it was being called upon to handle, but funds were not provided for this purpose until the deficiency act of June 15, 1917, was approved. A new supply depot was then quickly arranged for and the building rushed to completion. It was placed in commission in October, 1918. This building consists of eight stories and a basement, with all the latest appliances and facilities for the efficient handling of medical supplies both coming and going. The completion of this building has relieved the bureau of a serious problem and for the first time in a good many years it is felt that all demands for medical supplies can be met promptly. In view of the large number of ships to be taken over by the Navy in the near future, this relief has not come any too soon. The number of employees on duty at the supply depot has been increased from 45 men, before the war, to 111 men at the present time.

Another serious concern in connection with medical supplies was the question whether American manufacturers would be able to meet the increasing demands of the Army, Navy, and Red Cross, and at the same time provide the civilian population with necessary medicines, instruments, appliances, etc. The bureau has been agreeably surprised at the way manufacturers generally have met the situation and, except in a few instances for which no one is to blame, have responded to practically every demand made upon them. The few instances in question concern such drugs as opium, henbane, etc., which do not grow on this hemisphere but were imported heretofore from countries with which the United States is now at war, or communication with which has been stopped for the time being. When the increase in the combined demands of the Army, Navy, and Red Cross alone are considered, it is marvelous that the manufacturers have been able to supply these articles so promptly, and without any impairment in quality. It should be realized, too, that a few stations, such as the ones at Great Lakes, Hampton Roads, Newport, and Pelham Bay Park, now consume almost as great a quantity of supplies as were required for the entire Navy prior to the beginning of hostilities.

In April, 1917, the number of dental officers in the Navy was 30, while at the present time there are 473. What this increase has meant in the way of furnishing dental outfits, each outfit comprising innumerable separate articles, may well be imagined. There was a question whether they could possibly be supplied in view of the Army's requirements, which were of course greatly in excess of the Navy's. Some difficulty was encountered at first in securing the required number of complete outfits, but gradually, as different manufacturers realized what the ultimate demand would be, they have increased their facilities, and at the present time most of the dental material required may be secured in a reasonable time at only a slight increase over the cost of the same supplies in the past.



An idea of the increase in the supply depot's activities can be arrived at from the following comparisons:

Number of requisitions filled fiscal year 1917-----	1,840
Number of requisitions filled fiscal year 1918-----	5,212
Value of stores issued fiscal year 1917-----	\$524,093.79
Value of stores issued fiscal year 1918-----	2,460,858.66

A matter of grave concern to the bureau was the difficulty of locating or ascertaining definitely what ship or ships carried certain outfits, or stores, overseas, so that when a particular ship was sunk, or delayed for unforeseen reasons, duplication of shipment could not be quickly or intelligently ordered. This problem was met by the detail of a medical officer to the supply depot for the express purpose of keeping track of and tracing all shipments from the time they left the depot until they were placed on board a vessel and the vessel had sailed.

The supply depots established at Liverpool, England, and at Brest, France, respectively, are now running smoothly and fully meeting the urgent calls for supplies for ships operating in foreign waters, as well as furnishing the shore stations with necessary supplies.

The supply department was called upon during the past year to assist in purchases being made for the several Navy base hospitals, when expansion of the same was decided upon, and this extra work has assumed large proportions at times.

The new supply depot at Mare Island, Cal., which was authorized at the same time that the supply depot at Brooklyn was appropriated for, is nearing completion and will be adequate to meet all demands for medical stores required on the west coast and by ships operating in the Pacific Ocean.

Intimate cooperation with the Bureau of Supplies and Accounts, as well as with the Council of National Defense and War Industries Board, has resulted in the satisfactory purchase of all necessary supplies other than those regularly issued by the supply depot, and, except for slight delays here and there, every requirement has been provided. At the present time, a considerable proportion of the articles used regularly by the medical department of the Navy has been commandeered by, or is under the strict supervision of, the government—as, for example, castor oil, platinum, optical glass, textiles, and woolen materials. The bureau is, however, being adequately supplied and no acute shortage has thus far been felt in any instance excepting in a few cases where substitutes may well be used. A general warning has been issued to the medical department regarding the necessity of conserving all supplies, particularly those in which a shortage is to be apprehended.

During the past year, the supply table of the medical department has been completely revised and improved in many essentials. Distribution of the new supply table, with corresponding requisition forms, has been made to all ships and stations. The issue of stores from the supply depot has been expedited by waiving the bureau's approval of requisitions when the same are *not in excess* of the supply table allowance.

The bureau is endeavoring, so far as practicable, to prevent unnecessary transportation of supplies across the continent by directing the officers on the west coast and at stations in the middle west to purchase needed supplies locally, when practicable, to relieve the con-

gestion of the railroads and reduce the work at the Brooklyn Supply Depot.

The large number of marine regiments and replacement battalions has necessitated issuing many regimental outfits and this work has added materially to the work of the supply depot.

The following is the report of the activities of the Medical Supply Depot, Brooklyn, N. Y., for the fiscal year 1918:

	Number of requisitions filled.	Value.
First quarter-----	974	\$398, 987. 48
Second quarter-----	1, 217	651, 899. 09
Third quarter-----	1, 447	574, 917. 51
Fourth quarter-----	1, 574	897, 574. 60
	5, 212	2, 460, 858. 68

It will be noted that during the present fiscal year 2,372 requisitions were filled in excess of last year. Of the above 5,212 requisitions, 4,642 were for medical supplies and 570 for dental supplies.

Twelve regimental medical outfits for use in field service were prepared and shipped from the depot for service with marines, each outfit consisting of between 140 and 150 specially marked and striped cases.

The above figures do not include issues to manufacture, depot use, or test.

The force now on duty and employed at the depot consists of 1 commanding officer, 10 officers (1 dentist), 17 enlisted men, 111 civilian employees.

Owing to the increase of work, and the congestion in the present main building, the depot has during the year been obliged to make use of the temporary corrugated-iron building, originally erected by the American Red Cross in the hospital grounds, and also of the depot lumber shed, in the hospital grounds, for the storage of medical supplies. In addition to these buildings in the grounds, two floors have been leased in a building outside the grounds, on Hewes Street, and three floors in a building outside the grounds on Flushing Avenue. All of this space was solidly packed with supplies.

During the year the depot has disposed of horses in favor of motor-driven vehicles, for use in moving shipments, and now has one 4½-ton truck, two 2-ton trucks, one express runabout, and one 5-passenger car for inspection trips.

#### PUBLICATIONS.

The bureau's quarterly publication, the United States Naval Medical Bulletin, has entered on its twelfth year of usefulness as a means of distributing to medical and dental officers, to hospital corpsmen and female nurses information regarding medical and surgical topics of interest. The high character of this publication is evidenced by the constant demand for it from many sources outside the service in all parts of the world. Thanks to the increase in medical personnel and to the great bulk of the cases handled by them, the number of valuable contributions has increased and it has been possible to enlarge the size and scope of the magazine. The editor's special thanks are due to Lieutenant Commanders W. A. Bloedorn and D. G. Sutton, Medical Corps, United States Navy, for their able and unflagging help as reviewers.

That portion of the subject matter having special importance for the guidance and instruction of members of the hospital corps is printed for distribution to them in the form of a supplement, which is a measure of economy, while insuring that the contemplated object is attained. The supplement is edited by the officer in charge of the hospital corps, Lieutenant Commander G. F. Cottle, Medical Corps, United States Navy.

The weekly Sanitary Bulletin (Confidential), prepared by the Division of Sanitation, is discussed on page 49.

From time to time special publications of a confidential nature have been prepared by experts attached to the bureau, by which medical officers and others in the Navy have been kept abreast of the latest developments in defense against gas warfare, in the effects of gas, etc.

The edition of the Manual for the Medical Department issued last year was soon exhausted and it has been necessary to print 4,000 additional copies.

The Compend for Masters of Auxiliary Vessels, simplified and shortened, has been reprinted for issue on a larger scale as a guide for hospital corpsmen on detached duty and for commanding officers of small vessels carrying no medical officer. It accompanies the boat box.

The present Hospital Corps Drill Book is now being revised for publication.

Posters and booklets devised by Lieutenant Commander W. D. Owens, Medical Corps, United States Navy, for use in the campaign against venereal disease were printed and circulated first for Navy transports and later for vessels of the fleet.

The Division of Publications endeavors to be conversant with current medical literature and with the output of medical publishers, so that medical libraries of ships and hospitals may be supplied with necessary up-to-date reference books. Hospital corps training schools and the larger ships have been supplied with a special illustrated work on Principles of Surgical Nursing. Lelean's Sanitation in War and Goodwin's Field Service Notes have been provided for officers going abroad, serving with troops, or in camps in this country. Ships and stations have been supplied with the volume by Dr. J. F. Stokes, entitled "The Third Great Plague," and with the work of W. W. Keen on Treatment of War Wounds. One thousand copies of the pamphlet by Major General D. C. Shanks, United States Army, entitled "Management of the American Soldier," are to be distributed to the personnel of the Medical Corps.

Though not published by the bureau the new edition of Practical Bacteriology, Blood Work, and Parasitology and of Diagnostics and Treatment of Tropical Diseases, by Rear Admiral E. R. Stitt, Medical Corps, United States Navy, and the Naval Hygiene, recently given to the public by Captain J. C. Pryor, Medical Corps, United States Navy, are authorized and highly indorsed by the Medical Department of the Navy. These works are regularly issued to ships, hospitals, and stations, and this seems the most fitting place in which to give them the praise they merit so well.

## DIVISION OF SANITATION.

The work of the medical department in the field of preventive medicine has been splendid, and having passed through the difficult period of mobilization the future may be faced with confidence. The health of the Navy has been excellent throughout the year, and for many weeks sickness rates have been lower than in peace times.

Too much credit can not be given medical officers of all grades for their zeal and tireless energy in imparting the details of military procedure and the special features of naval medical administration and practice to the new medical personnel, several times outnumbering the original trained corps, while laboring at the same time under the necessity of combating continually very real perils from communicable disease, the ravages of which could not altogether be escaped during the early days of mobilization.

During the past year many difficult problems which have arisen in connection with the unparalleled expansion of the Navy and the inevitable disease-producing factors incident to the war, have been studied and overcome.

Experience in previous years has shown that an increased amount of sickness is always to be expected with an expanding Navy. During the past year not only has the expansion been enormous, but the rate of increase in new personnel has gone beyond all expectations. At times recruiting has proceeded at a pace faster than could be anticipated by new housing construction or enlargement of naval stations.

The dangers incident to overcrowding, beyond a doubt the most serious of all the factors leading to the introduction and spread of communicable diseases among military and naval organizations, have been operative much of the time. The winter was most severe and health conditions in general in the civilian population were unusually bad in many parts of the country. Pneumonia, always to be feared in the cold months, assumed this year most alarming proportions, and has been associated with unusually high mortality in all parts of the country. Under the unsettled conditions due to the war pneumonia developed to a degree where a change in type occurred, the streptococcic forms predominating in many places. The Navy in common with the rest of the country suffered damage from the pneumonias, but fortunately the cases among naval personnel were kept well scattered and devastating epidemics were avoided. At the same time the country experienced another year of unusually great prevalence of epidemic cerebro-spinal meningitis. This disease, which had prevailed extensively in England and France in 1915 and 1916, and was epidemic in this country and Canada when the United States entered the war, continued to be reported extensively all over the country in 1917 and 1918. Its continual introduction into naval stations by incoming recruits was therefore unavoidable, and an enormous amount of laboratory work in conjunction with constant watchfulness involving the application of most active preventive measures for its suppression was entailed in preventing the spread of the disease to an alarming extent. This was accomplished to an almost unhopd for degree. Only two outbreaks reached anything like serious proportions and these occurred because service conditions and necessities of war, over which the medical department had no

control, caused sanitary and hygienic requirements to be ignored for a short time at two large stations. Outbreaks of this and other communicable diseases naturally followed.

Contrary to what would have been proper practice in peace times it has frequently been necessary to keep a training station running to capacity in spite of the presence of serious communicable diseases. Under war conditions it devolves upon the medical department to prevent and control disease in such a way that the least possible interference with the training of new men and other important activities will be caused, not only by the diseases themselves, but by the methods used in suppressing them. It is necessary for ships to sail or keep the seas, disease or no disease.

The Navy was called upon to fight almost from the day war was declared. It had no time to prepare and the demand for men and more men came at once. Practically every vessel in the Navy became a training ship overcrowded with personnel and this has continued to the present time through fair weather and bad weather. Excess complements of 30 to 50 per cent are common, and these conditions, of course, increase disease hazards very materially apart from the impracticability of bending all energies exclusively to the eradication of communicable diseases after their introduction into a ship. Men are bound to be exposed to infection in ships where frequent transfers occur or where large numbers of men are sent temporarily for training. This is particularly true of transports where outbreaks of communicable diseases among troops in passage have been the rule. Other ships have been forced to remain in unhealthy ports for long periods of time, particularly in ports infested by malaria.

Unusual hazards have also developed on shore in connection with the many new establishments necessitated by the growth and extended activities of the Navy. Operating bases, section and patrol bases, coastal air stations, rifle ranges, and industrial plants have sprung up in many places along both coasts. Frequently the sanitary surroundings of such stations have been bad, so that besides overcoming the difficulties attending the development of a new station in order to bring its sanitation up to Navy standards, it has not infrequently been necessary to bring about improvement of health conditions in the environment.

In spite of the many circumstances tending to cause a high prevalence of disease and a high death rate good health conditions have been maintained, all training camps and stations have been enabled to continue without interruption their important work of providing man power for the fleets, and there has been practically no interference with the movements of ships. The general admission rate for the entire Navy, for all causes—disease, injuries, and casualties—during the six months from January 1 to June 30, 1918, is 716.50 per thousand per annum as compared with the average annual rate of 624.23 for the eight peace years, 1909 to 1916, inclusive. This is a low rate for the first half of the year containing as it does all the months which are bad from a health stand point—January, February, March, and most of April. Sickness rates tend to be low in the Navy during the summer and fall and even through December. The indications are therefore, that the general admission rate for the entire Navy for the whole calendar year, 1918, will be lower than the

average for peace times. The admission rate for recruits in training for the half year period was 1,086.04 as against the average rate of 1,272.99 per thousand for apprentice seamen during the eight year period 1909-1916, before the war. Since this class of personnel, characteristically showing a higher rate of sickness than all other classes except midshipmen, has given in these bad months a lower rate than the average whole year rate before the war the prospects for a very low admission rate, for the force in training ashore, for the entire year, 1918, are very gratifying.

Of the four large training stations three are well below the average, namely: Great Lakes Training Station, with an admission rate of 961.58 per thousand; Newport Training Station, 970.58; the training station at Hampton Roads, 1,110.69 per thousand. The San Francisco Training Station ran above the average with an admission rate of 1,488.64 per thousand.

The annual death rate for disease for the six-month period from January 1, 1918, to June 30, 1918, was 5.9 per thousand as compared with 2.7 for the 10-year period, 1907 to 1916. The rather high rate for these six months was due to the unfortunate and unavoidable combination of circumstances brought about by the rapid expansion of the Navy and the unusual weather conditions in the first quarter of the year, causing a death rate for disease during that quarter of 8.9 per thousand. The death rate for the second quarter was low, 3.3, a figure closely approaching the average for peace times.<sup>1</sup>

The experiences passed through during the year have proved the wisdom of creating a special division of sanitation in the bureau. In accordance with existing law which authorized the assignment of officers of the United States Public Health Service to the Army and Navy in time of war, 13 officers of that service were detailed for duty with the Navy in June, 1917, and one was placed in each naval district to assist and cooperate with the medical aide to the commandant.

Realizing the vastly increased importance which all sanitary considerations assume in time of war and desiring to elaborate and systematize our efforts in this field, a new division of sanitation was organized in the bureau with Lieutenant Commander J. R. Phelps, Medical Corps, United States Navy, in charge. Surgeon General R. Blue, of the United States Public Health Service, contributed in no small measure to the success of this undertaking by the happy selection of Surgeons H. S. Cumming and C. Fox, United States Public Health Service, as expert advisers to this division. The hearty cooperation of these officers and of those detailed for work in the various naval districts, their zeal and ability, have been of the greatest assistance to the bureau and to the service at large.

The organization for protecting the health of naval personnel has kept pace with the Navy's growth and in its present state of development it does not suffer in comparison with any civil department of health.

All the activities which are carried on by an efficient State department of health have their counterparts in the Navy organization with such modifications as are necessary to meet the needs of the serv-

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<sup>1</sup> Since July 1, 1918, the death rate has been very low.

ice. Each naval district has its own district health organization under the direction of the commandant with a medical aide to supervise and coordinate this important work at the various naval stations within the district.

The duties of the sanitation officers attached to the several naval districts are to advise with and assist the medical aide in all matters relating to the public health and sanitation. Their duties take them constantly into all parts of the naval district to inform themselves and to keep the commandant and the bureau fully informed as to health conditions and sanitation.

The following instructions have been given for their general guidance:

1. To make regular inspections of the sanitary conditions of naval stations and all places within the naval districts to which they are assigned, with special reference to water supplies, sewage, garbage, and manure disposal; to the introduction, presence, and disposition of cases of communicable diseases; to the presence of disease-carrying insects or of conditions favoring their growth; to the facilities for messing and housing the personnel.

2. To secure information by personal observation and through civilian health authorities as to the prevalence of communicable diseases and sanitary conditions in the areas around naval stations and in localities from which recruits are collected.

3. To advise and assist in eradicating any communicable disease that may make its appearance in the district, and to make such epidemiological investigations as may be necessary and practicable.

4. To make special effort to secure information as to the quality of water and milk supplied both to naval forces and to the civil populations in the immediate environments of camps and stations, and as to methods of disposal of sewage, etc., in such localities.

5. To direct particular attention to the presence of disease-bearing mosquitoes as well as to mosquito breeding areas either within the camp or within its immediate environment.

6. To determine as far as practicable the prevalence of venereal diseases in the civil communities adjacent to camps and stations, and to enlarge the measures used for their control.

7. To make reports, once a month, and oftener, if necessary, to the Surgeon General (Bureau of Medicine and Surgery) via the medical aide and commandant of the naval district, giving the results of inspections together with recommendations when necessary, and a summary of work performed during the previous month.

8. In addition to the foregoing, to hold themselves in readiness to perform any unusual duties of this nature which circumstances suggest or which the commandant of the district may deem advisable. All of these officers have rendered valuable service.

The naval district organization is thus analogous to the district health organization in a well-governed State. Just as a large municipality is able and is expected to look after its own welfare, so the larger naval stations are fully able to take care of themselves and their medical departments are provided with the personnel and equipment to apply effectively all necessary health measures and to maintain proper standards of sanitation in addition to furnishing medical and surgical treatment to the personnel. The district organization therefore acts principally in a supervisory capacity toward

such stations and its activities are limited for the most part to regular inspections by the sanitation officer, but he and the medical aide are frequently in a position to offer sound advice and assistance.

The smaller stations and scattered section bases are comparable to the less populous counties in a State and over their activities a closer supervision and control must be exercised by the district medical organization.

So practical has the organization been made in some of the naval districts, notably the 13th, 12th, 1st, 3rd and 5th that formal advisory boards of health have been appointed by the commandants for the study of problems in preventive medicine arising in the district. These boards are usually composed of the medical aide to the commandant, the medical officer in command of a naval hospital, the sanitation officer, and the public works officer of the district or naval station. In one district the commanding officer of the receiving ship is chairman of the board of health.

These boards have accomplished excellent results and have done much to correlate activities for the prevention and control of communicable diseases in their districts.

So far as the fleet is concerned, the larger ships have fully equipped medical departments and in general they are well able to handle their own problems. Should the prevalence and spread of disease overtax their resources the assistance and resources of the naval district are available in any large port on either coast.

The smaller vessels which return to port frequently, basing on a city or operating base, depend to a greater degree upon the naval district to meet their routine needs.

Each district contains a well-equipped laboratory either directly under the jurisdiction of the medical aide and sanitation officer or provision is made for district service by the laboratory of the naval hospital base, or, as in the case of the 5th, 9th, 10th, and 11th Districts, the laboratory of the naval training station.

The well-equipped diagnostic and bacteriological laboratory is a necessary part of the machinery of any health department confronted with the problem of controlling communicable diseases. Back of the district laboratories stands the United States Naval Medical School, which in addition to providing equipment and training personnel for the other laboratories, serves as a splendid research center. During the year the large and finely equipped Phipp's Laboratory in Philadelphia, with its director, Dr. Paul A. Lewis, has been taken over by the Medical Department of the Navy. This laboratory not only serves for the needs of the 4th Naval District but acts as a branch of the U. S. Naval Medical School laboratories for special research work.

In anticipation of winter demands, four mobile laboratory units were organized and equipped for field work by the United States Naval Medical School early in the fall. They were all urgently required before the winter was over and performed efficient service in meeting emergencies which would otherwise have overtaxed the resources of fixed laboratories in several of the naval districts.

Rear Admiral E. R. Stitt, Medical Corps, U. S. Navy, commanding the Naval Medical School has taken a deep interest in the work of the Division of Sanitation and has given valuable advice as to labora-



lory technique and diagnostic methods. The division has had the benefit of his notable experience in bacteriology and internal medicine and of his active cooperation in placing the resources of the school at its disposal.

Intimate relations have also been established with the Hygienic Laboratory of the U. S. Public Health Service and the spirit shown by its director, Surgeon G. W. McCoy, U. S. Public Health Service, and his assistants to aid in any way possible is fully appreciated.

The Surgeon General of the Navy presides directly over all these activities and inasmuch as he is charged among many other duties with responsibility for maintaining the health of the Navy, he is in virtue of this particular responsibility the chief health officer of the Navy. It is the duty of the division of sanitation to keep him constantly advised as to health conditions throughout the service, and the division is therefore directly concerned with his interest in:

- (a) The maintenance of low admission rates for sickness and low death rates from preventable diseases.
- (b) Health conditions in naval stations and on board ship.
- (c) Health conditions in civil communities, which constitute the environment of naval communities.

It follows that the division should keep itself informed constantly, through regular and special reports and through sanitary inspections and by means of statistics, of:

- (a) The need for action directed toward the application of the most recent discoveries in the field of preventive medicine and modern standard methods in the prevention, treatment, and control of preventable diseases in the Navy.
- (b) The need for action directed toward the reduction of preventable disease hazards among naval personnel, including Federal employees in industrial yards and plants operated by the Navy.
- (c) The need for action directed toward improvement of health conditions in civil communities when the health of the Navy is menaced.

The Division of Sanitation endeavors to keep informed of advances in bacteriology and preventive medicine in their application to the management of the communicable and other preventable diseases, and of progress in other services, civil organizations, industries, and institutions for medical research.

In accordance with the above outline the following activities are included in the work of the division:

1. The collection and compilation of morbidity and mortality statistics and the preparation of graphic records, charts, spot maps, and tabulations.
2. Supervision of the prevention and eradication of communicable diseases through:

Reports.

Epidemiological studies.

Advice in the application of preventive measures to the individual and his environment.

Advice relative to hospital facilities and dispensary service in so far as relate to the control of communicable diseases.

Quarantine.

Disinfection.

Laboratory facilities in so far as they relate to the control of communicable diseases.

Educational propaganda.

### 3. Supervision of sanitation at naval stations with reference to:

Water supply.  
 Disposal of sewage.  
 Drainage.  
 Disposal of garbage and refuse.  
 Extermination of insects and vermin.  
 Toilet and bathing facilities.  
 Messing facilities.  
 Control of the milk supply and inspection of other foods.  
 Sanitation of buildings—approval of plans and recommendations as to adequacy for the number of personnel to be housed; the necessity for an adequacy of detention facilities and isolation or quarantine facilities; supervision of inspections to ascertain that conditions are satisfactory in the respects in both old and new construction.

### 4. Supervision in matters relating to ship sanitation and hygiene:

Study of ventilation problems.  
 Berthing.  
 Water supplies.  
 Sanitary fixtures; proposed alterations thereof and new installations.  
 Quarantine and methods for the control of communicable diseases—disinfection

### 5. Hygiene of the individual:

Education, care of the body, clothing and diet in so far as the Bureau of Medicine and Surgery is concerned.

### 6. Supervision in matters relating to industrial hygiene.

7. Cognizance of health conditions in civil communities and direction of extra-cantonment work in cooperation with local, State, and Federal authorities.

### 8. Social Hygiene:

Educational propaganda and supervision of activities in the field of social hygiene, cooperation with the Interdepartmental Social Hygiene Board, the Navy Department Commission on Training Camp Activities, the United States Public Health Service, and State and local officials.

## VITAL STATISTICS.

The statistical methods put into effect in July, 1917, have proved satisfactory. A practical system of early and accurate morbid reports, together with the necessary office machinery for prompt compilation of statistics for immediate use, furnish the only means of obtaining the information essential for the effective application of the measures which modern preventive medicine makes possible for the prevention and control of communicable diseases. This important matter was therefore the first to which consideration had been given.

Prior to the war it was not considered necessary for the bureau to receive routine morbidity reports oftener than four times a year except from naval hospitals which were required to report weekly. After study it was found that the regular Form F card already in use was of itself an excellent morbidity report, but to be of any immediate value it became necessary to have the cards forwarded to the bureau daily, or as soon as the necessary information could be noted instead of quarterly. This change was put into effect at once. In addition, brief weekly telegraphic reports were required from the stations and appropriate changes were made in the forms submitted weekly from all naval hospitals. All deaths occurring in the Navy are reported to the bureau at once on a form which carries mor-

complete data than the certificates used in civil practice. Copies of these are furnished the Division of Sanitation each week by the Division of Records and Pensions and from them accurate mortality figures are computed weekly as rates per thousand per annum.

From the various morbidity returns received, statistics are compiled and rates per thousand are calculated weekly for the principal shore stations, and for the Navy as a whole, ashore and afloat. From these figures graphic records, spot maps and charts are prepared for study and hung on the walls for ready reference. This enables the bureau to keep constantly posted as to the incidence and prevalence of communicable diseases. Reports of morbidity in civil communities are also received through the United States Public Health Service. These are spotted on a large map of the United States from day to day. Colored pins and inks to designate the various diseases are used in the preparation of spot maps and charts.

This system of morbidity reporting as applied to the Navy under its excellent discipline makes it possible to secure complete and accurate returns, something which civil communities have been striving for unsuccessfully for many years.

The continued growth of the Navy during the year has steadily increased the routine statistical work which is now under the immediate charge of Lieutenant (T) J. Holden, Medical Corps, United States Navy, acting as chief statistician. At present three assistant statisticians, eight clerks, and four punching and accounting machine operators are required to edit and compile daily the morbidity reports as received. The use of an accounting machine makes its possible for this small force to handle a vast amount of statistical work rapidly and economically.

#### PREVENTION AND CONTROL OF COMMUNICABLE DISEASES.

In addition to morbidity returns, regular and special reports are received from officers in the field. These refer not only to routine sanitary inspections, but include reports on nearly all subjects within the scope of preventive medicine. A monthly report by the senior medical officer of every shore station is required. In addition, each sanitation officer is required to submit a report at least monthly covering all stations in the naval district as well as health and sanitary conditions in adjacent civil communities. All these reports are carefully studied in the bureau with a view to determining what should be done and what can be done, alone or in cooperation with other bureaus of the department, to improve unsatisfactory and insanitary conditions.

The division has also been kept in more intimate touch with conditions in the field through frequent inspections by officers attached to the bureau and by visits of medical officers attached to ships and various naval stations.

#### WEEKLY BULLETIN ON PREVENTIVE MEDICINE.

One of the most important duties of the division is the prompt dissemination throughout the service of information relative to discoveries in the field of bacteriology and preventive medicine and

their application in other Government services, civil organizations, industries, and institutions for medical research. This has been a matter of the greatest importance during the past year because the mobilization of large bodies of men both in this country and abroad has constantly presented for solution new problems in preventive medicine. Some of these have concerned the Navy directly and they have been studied by the division and by medical officers in the field. Valuable contributions to medical knowledge with special reference to preventive medicine have been made by the medical departments at some of the naval stations, particularly at the Naval Training Station, Great Lakes, Ill., where conditions afforded unusual opportunity for epidemiological investigations.

The war in Europe has developed many medical problems and some of the best brains in the world have been engaged in studying them. An endeavor has been made to place a true valuation on the reports of such studies as soon as they became available and to present such knowledge through the pages of the weekly bulletin, "Notes on Preventive Medicine for Medical Officers," to the officers in the field who could in no other way have had access to the exceptional sources of information constantly reached by the bureau.

In view of the fact that a large proportion of the medical officers now on duty entered the service after the beginning of the war, having had little or no previous experience in the prevention and control of communicable diseases, the weekly bulletin has furnished an excellent means to review the underlying principles of preventive medicine from the modern viewpoint. It has also served to inform officers, other than medical officers, of matters relating to the health of the Navy and to bring about a more lively realization that the personnel can not be kept well unless the essential requirements of sanitation and hygiene are maintained without being allowed to lapse even temporarily.

In addition to other information the bulletin contains current morbidity and mortality statistics relating to the different stations and the Navy as a whole.

Many comments by medical as well as other officers and prompt requests for numbers not received on time indicate that this publication is of much value to the service.

#### HOUSING AND BERTHING.

When this division was organized a year ago the prevalence of communicable diseases, notably cerebro-spinal fever, scarlet fever, and measles was still high, resulting from the first sudden mobilization of the Navy following declaration of war. Men were being recruited by thousands almost daily; housing accommodations at the outbreak of war were limited to four permanent training stations, which in the light of the present great stations, must be looked back upon as very small indeed. Fortunately the first tremendous increase in personnel came in the spring, and it was possible to avert disaster by the use of tents. In the meantime, by taking over armories, covered piers, summer hotels, old exposition buildings and other property, additional facilities were procured and while such housing conditions were frequently bad from the standpoint of

health and sanitation, they afforded the available shelter which had to be obtained immediately.

At the same time the erection of rapidly constructed barracks was begun at training stations and upon new sites, such as Hingham, Mass., Bumkin Island in Boston Harbor, Cloyne Field, Newport, R. I. and in the navy yards at Philadelphia and Charleston. As was to be expected, these buildings, put up as rapidly as possible to meet the great emergency, do not compare favorably with barracks erected later from standardized plans. Thus the most pressing problem before the division in the summer of 1917 was the study of new housing conditions and needs. All things indicated that it would be futile to expect that the usual standards agreed upon as proper by hygienists and sanitarians could be attained. The necessity to provide cover for all men before cold weather was urgent, and it was also essential that health hazards incident to barrack life should be reduced to a degree as consistent with safety as possible. The type of construction obviously required to meet war needs represented a radical departure from existing types and for all these reasons the question of standards had to be reconsidered from the viewpoint of new conditions. The English standard before the war was 600 cubic feet of air space and 60 square feet of floor area per capita, but it is well known that it has not been possible to maintain these standards under war conditions.

It is one thing to build barracks in accordance with certain standards, but quite another thing to insure that more men will not be housed therein than the buildings were designed to accommodate. With all things taken into consideration, it was concluded that communicable-disease hazards in the end would be met best by recommending minimum requirements to which adherence might reasonably be expected rather than standards unquestionably safer, but unattainable under the circumstances.

It was considered that 5 feet between men in barracks under sleeping conditions was the minimum separation that could be recommended in view of the well known direct manner in which all diseases of the respiratory type are communicable; that 50 square feet was the minimum floor area consistent with this most important requirement, but that the standard for air space might safely be reduced to 450 cubic feet if compliance with the first two requirements were enforced, provided ample ventilation was maintained by sufficient window space and ventilators to insure not less than 3,000 cubic feet of air per capita per hour. These standards were low, but they afforded reasonable protection against the spread of communicable diseases, and it was hoped that adherence to them could be maintained.

They were recommended in September, 1917, and in general have been incorporated in new construction since that time. However, it must be said that buildings, properly planned, have frequently been overcrowded later by putting more men into them than they were designed to accommodate, and buildings which were designed before these standards were put into operation have continued to house more men than allowable under standard conditions. Complements have been reduced here and there upon the recommendation of boards of inspection, but overcrowding has persisted and at numerous

stations floor areas as low as 30 square feet per man are still found. In no instance where these standards have been maintained has there been serious spread of disease. On the other hand, where marked overcrowding has existed, outbreaks of several communicable diseases have generally occurred promptly.

It is only fair to say that unexpected demands have made it necessary from time to time to increase the rate of expansion more rapidly than housing facilities could possibly be constructed. Realizing that this would probably occur, the expedient of berthing men alternately head to foot in barracks where overcrowding existed was recommended, together with the use of muslin screens between bunks or hammocks as adopted at the Great Lakes Training Station.

As soon as possible, buildings already constructed were studied and recommendations were made for alterations necessary to improve ventilation and bring them up to proper standards. Despite the best efforts to improve and adapt for use as barracks large buildings originally constructed for other purposes, experience during the year, as was anticipated, has shown that it is extremely difficult to keep men well when quartered in them in large numbers, even in the most favorable climate.

Apart from the standards mentioned above, quartering of men in groups as small as possible consistent with naval requirements has been urged constantly in the interest of the control and prevention of communicable diseases, and all the experience of the past year serves to confirm the wisdom of this recommendation. In places where climatic conditions have permitted the use of tents they have given excellent results.

For sleeping purposes, hammocks, cots, and double-deck standees are all commendable from the sanitary and hygienic viewpoint, if they are properly spaced. All things considered, it is in the interests of the service to accustom men to the use of hammocks before going to sea. A distance of 13 feet is ordinarily required to swing a hammock, and a building to accommodate two lines of sleeping men must necessarily be about 27 feet wide, whereas with bunks or beds a width of 20 feet is considered desirable, because there is then no temptation to put an extra row of bunks in the middle. The use of double-deck standees can be approved only where proper separation and cubic air space are insured. Serious objection must be made on sanitary grounds to the use of triple-deck standee bunks.

#### THE DETENTION SYSTEM.

This system was in operation at naval training stations long before the war. A full three-weeks' period of observation of all recruits entering naval training stations or camps, direct from civil life, is absolutely essential to prevent repeated introduction of communicable diseases into the main camps from communities throughout the country. Unbroken incoming detention is unquestionably the most important single means of avoiding interference by epidemics with the functions for which the station exists, and the past year has shown that where incoming detention was broken it was impossible to prevent serious outbreaks of several diseases and material interference with the training period, to say nothing of the loss of life.

Theoretically an outgoing detention period is unnecessary. The theoretical view assumes that the main station or camp is clean. Practically, in war times at least, this is not so. Weekly reports from large stations show that nearly all the communicable diseases of the respiratory type are represented in small numbers almost constantly. Unrelaxing vigilance is required to prevent outbreaks of these diseases consequent upon continuous introduction of the causative organisms by visitors and men returning from liberty. Hence it is only by means of a full three-weeks' period of outgoing detention that the distributing station or receiving ship, and thus the fleet, can be protected against the introduction of serious diseases in epidemic form with drafts from the training station. A period of observation shorter than three weeks will not insure the detection of all cases of mumps and measles. This period of quiet also allows recovery from minor ailments—coughs and colds—so that the draft may at least be started from the station free from disease.

#### SANITARY MEASURES AND CONDITIONS AFLOAT.

No marked changes have been necessary in the regular cruising ships of the fleet. It has been sufficient to amplify existing facilities and enlarge the supply of medical stores. The personnel of the medical department on board was largely increased, so that young medical officers and hospital corpsmen recently enrolled could have practical experience of ship conditions. They have all received constant and regular instruction and have given practical evidence of the benefits received. In the beginning medical officers were assigned to torpedo-boat destroyers. This was a wise step for the voyage over and until the new field of operations had become familiar. Later it was evident that, with base hospitals within reach and mother ships being at hand fully equipped to render elaborate medical service, the doctors could with advantage be replaced by competent hospital corpsmen of the higher ratings, thus making available more quarters for the additional officers needed to fight the ships. On many of the smaller ships, converted passenger and cargo vessels, yachts and patrol boats the crews have suffered minor discomforts and temporary privations, due to lack of refrigerating or electric plants, to primitive accommodations, to deck loads of coal, etc. No serious damage to health has resulted and the numerous petty annoyances have been cheerfully and patriotically endured.

Usually the smaller vessels with a complement of less than 120 men, especially those of auxiliary type, cargo carriers, and the like, have no medical officer, members of the hospital corps, selected for somewhat superior ability and judgment, being assigned to them. Many a hospital corpsman of great value, when serving under the immediate supervision of a medical officer, is unfit to meet the responsibility of independent duty. The hospital corpsmen, therefore, when alone should not be expected to do more than act as custodian of the medical stores, prepare the necessary returns, administer first aid, and serve as the commanding officer's instrument for attending to minor sanitary observances.

It has been explained to the authorities that whenever the captain of a ship unprovided with a medical officer anticipates some particularly hazardous duty, or one taking him away from his usual route

or to localities where epidemic diseases are prevalent, he should request that a medical officer be detailed for the duration of the voyage or other exigency and later should report when his services can be dispensed with.

As a matter of economy of space and to economize in distilled water it has been suggested that showers be substituted for tubs in the sick-bay bath of battleships. This does not meet with favor from the bureau. There are many cases of sickness where immersion in a tub is desirable and where the shower bath would not be available or useful.

The medical departments of the vessels of the fleet are fully prepared for the hazards of battle. The battle dressing stations, located behind armor and equipped with hot and cold water, with electric sterilizers, operating tables, and ample supplies of surgical dressings, manned by skillful and devoted doctors and attendants, are ready.

A painstaking study has been made of all problems connected with the food and clothing of the men. Drinking fountains of the sanitary type are being supplied to our ships in increasing numbers. The delivery pipe leading to the mouthpiece should be inclined at an angle of from  $10^{\circ}$  to  $20^{\circ}$  in accordance with the results of the latest bacteriological studies. There is a real need for installing sanitary scuttle butts in or adjacent to firerooms and engine rooms, as the men in these compartments are the largest consumers of water and live under conditions of special strain and those least conducive to health and resistance.

#### U. S. ATLANTIC FLEET.

The rapid expansion rendered necessary by the existence of war with a nation that has made the intensive study of war its paramount activity for more than 40 years gave no time for leisurely preparation. Hence it was that many vessels of the fleet housed and cared for a personnel as much as 50 per cent more than normal. The usual training on shore, wherein the recruit was always held in detention long enough to account for the development of any contagious disease, was considered impracticable. As a result, an abnormal number of cases of cerebro-spinal fever developed. German measles, measles, and mumps, although producing great inconvenience, were not serious. Cerebro-spinal fever was epidemic throughout the United States at the time of mobilization, and, when this is considered, the incidence of this disease in the fleet was not great. Serum treatment was practiced from the appearance of the disease. There were 105 cases from April 1 to September 30. A systematic examination for carriers was conducted and but 10 cases occurred in the fleet from October 1 to December 31.

Practically every ship in the fleet has been operating during the war with a large increase of personnel. This has resulted in overcrowding and sleeping on deck, and billeting in spaces that had not been used as living spaces previously. An increase in communicable diseases, attributable to this unavoidable overcrowding, ensued, but at no time has a condition existed that could be considered alarming. Comparison of health conditions in the Atlantic Fleet (even in the early winter months) with those of the Asiatic Fleet, during the period of its greatest activity in peace times, gives a considerably



lower percentage of disability in favor of the Atlantic Fleet during the past year.

*Sanitary aids.*—The following recommendation was made in the inspection reports of battleships:

As present conditions require a number considerably in excess of the former complement of the ship to be housed, unusual care with regard to heating and ventilation is recommended. To this end CO<sub>2</sub> observations should be made and the temperature of living spaces should be maintained at as near 68 F. as is possible.

The following procedures are considered to have largely contributed to the maintenance of health:

The linoleum of decks after ordinary cleansing has been mopped with a saponaceous solution of cresol. Sanitary scuttle butts have been frequently disinfected with blow torches. The delivery tubes have also been given a slight angle of inclination, which prevents a vertical delivery. Spitkicks contain a solution of formaldehyde.

Hammocks and cots have been so arranged that feet and heads of occupants are opposite, when abreast.

Frequent exposure of hammocks and bedding to sun.

"Setting up" drill has been practiced every morning unless absolutely prohibited by weather conditions.

Keeping the crew on decks whenever possible. In this connection the production of moving pictures deserves special mention.

After a brief course at the Naval Medical School and a variable period at a large naval hospital, the recently appointed assistant surgeons were assigned to large ships of the fleet, with experienced medical officers who acted as their instructors, so that after some months of intensive instruction, they generally became sufficiently proficient to be available for assignment for independent duty. As many as three recently appointed medical officers have been attached to the larger battleships at the same time. The fleet has in this way provided the best practical training school for medical officers.

Members of the hospital corps assigned to the fleet have been subjected to the most intensive training. This has followed, generally after a course at one of the several hospital corps training schools ashore, some of which, fortunately, were reestablished on a comprehensive scale, in 1914. Special instruction has been given to those showing particular aptitude with a view to fitting them to give expert first-aid treatment on smaller vessels of the fleet, to which the detail of a medical officer was not practicable.

After a period of seven years' use there has been no appreciable improvement in the combined heating and ventilating system of our ships, and all the original defects pointed out in the past still exist. The humidifying apparatus designed to furnish a proper amount of aqueous vapor to the heated air absolutely fails of accomplishment. In vessels wherein little or no intelligent attention has been given to the system, during cold weather, when heat is furnished, the dehydration of the air is so great as to render the heated compartment unfit for habitation and provocative of chronic inflammation of the respiratory mucous membranes.

On vessels wherein the greatest attention has been given to the system, it has still proved most unsatisfactory. The personnel required to maintain the proper temperature is excessive. As soon as a temperature greater than 68 F. is reached, the low relative humidity immediately becomes most apparent by its disagreeable

effects on the mucous membranes and prolonged exposure has even induced minute hemorrhages of the nasal mucous membranes. On the other hand, compartments remote from the source of heat have been so much underheated as to necessitate the installation of accessory electric heaters.

Vessels of the fleet, including all battleships prior to the ships of the *Florida-Utah* class, and all other vessels are heated by steam radiators, which are much more satisfactory from the sanitary point of view. Ventilation is generally accomplished by supply and exhaust systems and is, in the main, satisfactory.

The requirement in the "Manual for the Medical Department" that "routes to dressing stations should be indicated by an arrow and a red cross" is complied with in the fleet. The pattern installed in the latest vessels is not satisfactory in that it does not sufficiently arrest the attention or indicate direction clearly, nor are the signs put up in sufficient number to be of practical service. They are made of metal, 7 by 4½ inches, and are secured to bulkheads by four screws. The background is of dark green; there is a red cross 3 by 3 inches and a white arrow 1 by 6 inches, located above the cross. Against a white bulkhead, the green background largely destroys the attention-directing element of the device. It would accomplish the purpose more fully if it had a background of white, a red cross, and a black arrow and the entire device were in a continuous line. Also, it is believed that it would be better if the arrow were placed in front of the red cross instead of over it.

*Table of epidemic diseases in the Atlantic Fleet.*

	Measles.	German measles.	Mumps.	Cerebro-spinal fever.	Scarlet fever.
1917.					
January.....	66				
February.....	44	19	14	1	2
March.....	32	37	27		8
April.....	124	68	175	29	13
May.....	358	309	402	40	29
June.....	214	195	549	24	11
July.....	31	48	344	4	3
August.....	15	21	179	3	
September.....	24	9	118	4	
October.....	19	19	130	2	
November.....	30	5	200	5	
December.....	40	20	390	3	14
Total.....	997	750	2,528	115	80

Protection against lethal and lachrymatory gases by appropriate masks has been effected to a great extent, but it is to be hoped that improved devices will secure an even greater amount of protection, with much less interference with the wearer's efficiency. A good beginning has already been made in the training of both officers and enlisted personnel in this now generally recognized method of warfare.

Protective measures have likewise been devised against powder ignition flash and flame; uniform protection by suitable devices is under consideration.

The following are extracts from the annual sanitary reports of individual ships:

*U. S. S. Celtic.*—It is strongly recommended that neither officers nor enlisted men be ordered to this ship for passage when it is loaded with cargo, except in cases of most urgent necessity. When holds are empty probably 150 men can be carried. During the past year men have been ordered to this ship in such numbers as to cause hardships and suffering and constitute a menace to all on board.

*U. S. S. Cheyenne.*—It is recommended that some man, necessary to the operation of a submarine (cook or gunner's mate, etc.) be sent away for a course of intensive training in first aid and be then assigned to that additional duty on a submarine. Every submarine officer with whom the plan has been discussed considers it decidedly good.

*U. S. S. Delaware.*—At present the number of the crew is 204 in excess of complement. The excess of complement during the past year has probably averaged about 200 or more. This has necessitated a crowding of berthing space, but in general the ventilation of the ship is good. The heating system as a whole is satisfactory.

Some of the blue serge trousers issued from the small stores were found to be of inferior material and did not give satisfactory service. Clothing issued to some men at training stations faded to an ugly purple gray and did not wear well. Otherwise the clothing has been all that is desired and all members of the crew were well supplied.

*U. S. S. Louisiana.*—The medical officer having been put in charge of the heating and ventilating systems of the ship arranged to have two-hour thermometer readings in various compartments in an effort to maintain a temperature of from 68° to 72° F. To obtain definite results from his daily sanitary inspections he devised a form on which to enter his observations, and this systematic record and report is now adopted on all vessels in battleship force No. 1.

*U. S. S. Melville.*—The daily average complement, which in 1916 was 339, has gradually risen to 702 without noticeable relative increase in sickness from overcrowding, due to the fact that the character of the duty performed by the vessel makes a maximum amount of ventilation available at all times. The *Melville* is a mother ship for the destroyer force, and acts like a hospital ship in relation to its sick. The *Melville* has taken care of practically all of its own cases, except the contagious ones, 65 out of 87 transfers to British naval hospitals being of that type, usually measles or mumps. All operative cases have been attended to on board. The operations were: Major, 25; minor, 9; administrations of salvarsan, 143. The 25 major operations were for: Appendicitis, 11; hernia, 10; empyema, 1; goiter, 1; perinephritic abscess, 1; arthrotomy, 1. No deaths or serious infections followed the operations.

Favorable comment is made on the Stokes stretcher, which is peculiarly useful on destroyers. The "Neal-Robertson" stretcher had only its relative cheapness in price to recommend it over the Stokes device.

*U. S. S. Mississippi.*—The complement of the ship consists of 63 officers, 60 chief petty officers, and 1,061 other enlisted men, including the marines, a total of 1,184. However, from time to time additional men are sent to the ship and billet hooks have been put up for

2,000. The greater part of the men are recruits and have not the esprit de corps of the older service men. This is very manifest in their indifference to the cleanliness of the deck.

It is to be regretted that with the plentiful supply of air by the plenum system little provision has been made for exhausts except in the engineering compartments and heads. Practically all the air from the shell, powder, and handling rooms and from the compartments on the third deck escapes by hatches to the second deck. As a large part of the vitiated air from the second deck must escape to the main deck by hatchways, the ventilation of these decks is complicated by the vitiated air from the decks below.

As forced draft is used exclusively in the firerooms, the air supply is ample and the danger of causing heat cramps by changing from natural to forced draft is eliminated. A bad feature of forced draft by the closed fireroom system, which this ship has, is that the upper parts of the firerooms become intensely overheated, reaching a temperature of 180 F. or 200 F., so that it is hazardous for the firemen to work up there, as is often necessary. Outlets for this excessive heat can not be provided in this system because an air pressure of eight and a quarter inches of water greater than atmospheric pressure has to be maintained. In the Howden system of forced draft this condition does not obtain because the air is led by piping directly to the burners and it is possible to have the firerooms open above.

While discussing the ventilation of the firerooms it should be mentioned that one hundred and twenty men are billeted in the large air ducts on the second deck around the uptake. These air ducts draw air from the large open intake abaft the bridge and from two cowls on the superstructure deck. They exhaust to the blower rooms below through gratings in the deck covering air ducts. The draft in this is consequently terrific. The air is certainly completely renewed in less than a minute. The differences in temperature in various parts of this compartment are extreme. The air ducts are so large that they are really a compartment, and while the temperature under the cowls and at the forward end was at the freezing point a temperature of 70 F. was recorded in the afterpart. Men billeted there have been very subject to respiratory infections and have repeatedly complained of the condition. Recommendations to abandon billeting in the air ducts have been made.

The lighting arrangements are very satisfactory. The crew spaces are all well above the water line and armor plates and have, therefore, sufficient ports to admit daylight. As the bulkheads and overhead are painted white the diffusion of light is adequate. The artificial illumination is of the direct type with incandescent lamps, placed on the deck overhead. As these are covered with prismatic glass cylinders the light is well diffused and there are no exposed filaments to impinge on the retina. The lighting is about sufficient to keep the spaces from being gloomy, but not enough to make them cheerful. On the average there is one 40-watt lamp to 1,400 cubic feet of air space. The illumination on mess tables is about 1.5 foot candles. If it were not for the reading room the illumination would be insufficient. In the crew's reading room the lighting is by 40-watt overhead lamps with bowl-shaped holophane reflectors. The

average there is one 40-watt lamp to 500 cubic feet of space and about 2.5 foot candles on the tables. In the sick bay the illumination, though by the same method, is much better. There is one 40-watt lamp to 800 cubic feet of space. In handling rooms, workshops, and storerooms the illumination is not very good, yet with the use of portables for close work it suffices. These lamps are also incased in prismatic cylinders.

In the crews' and officers' galleys the wash sinks are piped for both fresh and salt water. This is a very dangerous condition, because with leakage or accidental use of salt water on mess-gear and cooking utensils, polluted or infected water from over the side is liable to cause disease. It has been recommended that these lines be plugged. This condition fortunately does not obtain in the pantries, as they are piped for fresh water only.

Except for removable seats and fresh instead of salt-water showers the heads and washrooms of this ship show no improvement on the older types. There is the usual crowding of water-closets, urinals, wash troughs, and showers in a small washroom. The percentage of heads, showers, and the like is about the same and the fixtures are identical in pattern with those in vogue for many years.

The showers, of which there are four, are piped for fresh water only, which is to be commended, for the uncomfortable sticky condition of the skin which follows a salt-water bath discourages the frequent use of showers when supplied with salt water. Water can be heated to any desired temperature by the usual type of Jenkins's steam heater. Save that cooking is done by oil burners, there is no new departure in the commissary arrangements.

There is a large incinerator tank operated by oil situated on the superstructure deck abaft the smoke pipe. It has three oil burners and very efficiently consumes all the rubbish and refuse of the ship. It is able to handle garbage without expressing the water in it, and so makes a garbage press unnecessary. The escape from the incinerator runs into the smoke pipe and there has been no discomfort from the odors that emanate from so many incinerators.

The sick bay and operating room are as they should be, the finest show place on the ship. The sick bay is athwartships forward on the second deck. It measures about 16 by 60 feet, has a deck area of 960 square feet, a gross air space of 7,496 cubic feet, and a net air space of about 6,575 cubic feet. There are 12 double-deck enameled-iron bunks of a type that can be swung up when not in use. They are spaced alternately 3 feet and 5 feet from center to center. Calculating from the net air space there are about 275 cubic feet of air space per bunk, which, though too little if all the bunks were occupied, is ordinarily ample. Ventilation and heating are by the thermo-heater system of hot air, which supplies 1,600 cubic feet of air per minute, or enough to effect a renewal in 4.7 minutes.

The forward battle dressing station is on the third deck between the number two barbette and the conning tower foundation. It has a deck space of about 2,000 square feet. There is a water tank of 128 gallons capacity, and provision for heating water both by electricity and steam. There is a cast-iron sink covered with porcelain, with faucets for hot and cold water and a sanitary scuttle butt. There are four tables, measuring 5 feet by 2 feet, screwed to the bulk-

head. There is an electric instrument sterilizer, 16 inches by 8 inches and 6 inches deep.

The after battle dressing station is located aft of the number four barrette. It has a deck space of 1,200 cubic feet. Unfortunately this compartment of the ship is unheated, and in spite of recommendations made nothing has been done. It is equipped in the same manner as the forward station, except that the surgical instruments to be used here are to be removed from the operating room when the ship is cleared for action.

Much has been done to make the crew happy and comfortable, and the finest thing of all is the crew's reception and reading room. This room, measuring some 60 by 20 feet, is situated on the main deck aft. It has half a dozen ports opening on the quarter deck which admit daylight, and it is well provided with artificial illumination. In it are tables, leather upholstered transoms, and chairs. A chair may seem a very simple article of furniture, yet few are the ships on which an enlisted man ever gets an opportunity to sit in a chair. There are several bookcases. For the convenience of women visitors there is a head adjoining the reception room. The general equipment of the room is like that of officers' quarters. The furniture is of steel, finished in olive green, with brass trimmings. The table tops are of composition colored green. The transoms are upholstered in leather. The deck is covered with red linoleum. It can comfortably accommodate about 80 men. A reception room like this is very conducive to happiness and good fellowship.

*U. S. S. Montana.*—Between June 27 and July 9, 1918, there developed in the crew 61 cases of acute gastroenteritis marked by severe retching and vomiting of bile-stained material, pains in stomach, cramps of bowel, and simple diarrhea. There was no mortality. Careful investigation failed to determine the cause of the outbreak. An examination of the water storage on board revealed in the port scuttle butt a gelatinous mass three-fourths inch thick on the bottom and one-eighth inch thick on the sides and two tufts of cotton waste were found in it. The potatoes being served as part of the ration were old. It could not be proved that either of these facts had anything to do with causing the gastroenteritis.

*U. S. S. North Carolina.*—Nitrogen-filled electric lights have been used with success. Bulbs manufactured with glass of a blue tint give a balanced spectrum closely approximating that from a white cloud, through the removal by filtration of the excess of red and green rays. Lamps of this type will always be valuable in the medical department for microscopic work at night, ear and throat work, and examination of skin lesions and they are especially useful when, as at present, battle ports are closed day and night. Thermotanks should be adjusted to heat living rooms to 55° or 60 F., and if, by reason of occupation or personal idiosyncrasy, a higher temperature is needed the warmth should be met with electric heaters able to furnish the slight added increment required. Experience on this vessel has shown the superiority of bitumastic over Portland cement as lining material for fresh water tanks. Drinking fountains should be installed for firerooms and engine rooms. Salt-water showers for the crew should be discontinued. The hygroscopic action of the salt is disagreeable if not harmful. Clothing washed in salt water is hard

to dry. Laundries for the crew are desirable, if they can be made to use fresh water economically. Electrical connections and supports for electric fans should be installed in turrets, handling rooms, and other compartments liable to the invasion of poisonous gases, so that when an action is imminent the fans may be rapidly set up with a view to keeping the air in motion, thus lessening the bad effects of impure air and preventing the concentration of gases. It is important at this time to pay special attention to the visual strength of lookouts and while in the war zone these men should wear orange glass goggles and have very brief periods of duty.

*U. S. S. North Dakota.*—The addition to the outfit of the new "cold weather clothing" affords the men protection never enjoyed by them before and has much to do with the noticeable reduction in the number of colds and catarrhal conditions. So far we have had no pneumonias or pleurisies, which may or may not be due to the fact that the men on watch and in boats, in addition to wearing this heavier outer clothing can have their feet protected with the rubber overshoes supplied. It would appear that in the past we have not been dressing the men in a way to withstand the most rigorous winter weather. The older officers and men in the service seem to think that the regulation naval clothing is not up to past standards of texture and quality, owing, doubtless, to the inability of manufacturers to meet the sudden increased demands. The battle dressing stations have been fitted with economical hot-water heaters, which have been arranged by the engineer to supply hot and cold water.

*U. S. S. Oklahoma.*—The battle dressing stations of this vessel have been improved by the following additional equipment: An additional fresh water tank of 100-gallon capacity installed at each battle dressing station; likewise electric instrument and dressing sterilizers, the steam pipes and lavatory bowls at each dressing station being protected by wire netting when not in use. An ample supply of all surgical dressings and other necessities are kept in the storeroom adjacent to each battle dressing station. The general health of the crew has been very good, considering the shifting personnel of immature recruits coming aboard from training stations and later on being transferred elsewhere to make way for new drafts in need of training. There were no serious epidemics until near the close of the year, when mumps were introduced aboard from Newport. There were four cases of cerebro-spinal meningitis during the year, 123 cases of mumps, 78 of measles.

*U. S. S. Ozark.*—On arriving at Tampico, Mexico, June 25, 1917, every precaution was taken to protect the crew from malaria, which is so widely prevalent and has such a high mortality at that place. The ship was screened as thoroughly as possible. The men were provided with mosquito netting for their berths and head nets and leggings were used by all on duty on deck after sundown. Daily at morning quarters quinine was administered to all hands.

*U. S. S. Pennsylvania.*—One of the lessons learned from the preparations made aboard this ship for war service was in regard to the location of the operating room. It is necessary on our battleships to give up the operating room in anticipation of action, removing the sterilizers, etc. In future ship construction it would seem to be the part of wisdom to locate the operating room at the site of the for-

ward dressing station so that its installation may be *permanent for every contingency*. The present operating room could be used as a dressing room for minor injuries and for minor surgical operations. At present the dressings are done in the sick-bay, much to everyone's inconvenience.

*U. S. S. Salem.*—Attention is called to the benefit that would be derived from the installation on board Navy vessels of a drying room with high temperature, so that when clothing is washed in bad weather it could be thoroughly dried. Such provision would increase the frequency with which men wash their clothes and make for cleanliness and health. Men are often drenched to the skin when doing deck duty under way, when out in boats, repairing targets, etc., and have no means of thoroughly drying their clothes unless clothes-lines can be rigged and the sun is shining. Clothing and bedding lashed up for the day in a canvas hammock are practically in an imprevius closed bag which retains emanations from the body in sweat and moisture.

*U. S. S. Von Steuben.*—The general health of the ship's complement has been very good. The special winter outfits now furnished to men exposed on deck during inclement weather have filled a long-felt need. There has been some complaint from the crew in regard to the durability of the blue uniforms and the quality of the dyes employed, defects which will undoubtedly be remedied.

*U. S. S. Wyoming.*—It is recommended that ships now building be equipped with metal first-aid lockers at each gun and that the present first-aid canvas bags be done away with. It is impossible to keep these canvas bags clean or their contents sterile for any length of time. Metal lockers can be cheaply installed and could be secured with some type of lead seal which would prevent tampering with their contents.

Lieutenant Commander F. E. Sellers, Medical Corps, United States Navy, comments unfavorably on the ventilation of the coal-burning destroyers which is largely dependent on natural causes. The defective ventilation becomes particularly noticeable when a destroyer is subject to prolonged periods of bad weather, with consequent closing of hatches for days at a time, as is common where our destroyers are operating abroad. Men of years of service are made seasick for the first time by the foul air, and many in the engine room prefer to stay there after coming off watch because of the stuffiness of the living spaces assigned them. On the *U. S. S. Jervis* the ventilation aft, when underway with everything closed, is defective and reduces the activity and efficiency of the crew.

*Battleship Force No. 1.*—Special effort has been made in this division of the fleet to standardize the medical preparations for battle. In the past, owing to variation of structure in the several ships and to the different views entertained by individual medical officers, there has been some lack of uniformity in this respect. The advantages of uniformity are the ease with which men transferred from one ship to another can promptly take up their duties and the possibility of determining at inspection whether the preparations of a given vessel are up to the standard. The making of requisitions for stores, the installation of special devices, minor changes of structure are all simplified by such uniformity. The location and equipment of each



dressing station with the number and rating of officers and men assigned to them and their specific duties are given in detail in the order of the force commander. To the chaplain is assigned the duty of supervising the clerical work. This includes the tagging of each patient and the retention of a copy of the tag, giving name, rate, religion, diagnosis, and treatment. The dental surgeon is the anesthetist. Minute instructions are given in regard to dismantling sick bay and operating room, the rigging of the dressing stations, the care of microscopes and other costly and valuable articles; the location of reserve stocks of dressings; the transportation of the injured; the handling of fire hose, gas masks, ventilators, etc. Provision is made for installing portable fans, for the subsidiary lighting of compartments, and for the handling of sick and wounded at "abandon ship."

An order has recently been promulgated by the force commander relative to general sanitary measures. It calls for a daily sanitary inspection of each ship; for special care in regulating the ventilation, heat, and humidity of living spaces, and in ordering uniform of the day that it may be strictly suitable to weather conditions; for reduction of overcrowding in particular compartments. Special measures are ordered to prevent spitting on deck; to insure sufficient spitkicks in every compartment and have them cleaned daily. Directions are given for the sanitary preparation and serving of food; scuttle butt terminals are to have an inclination of 10 to 15° and to be flamed daily; dishcloths are to be boiled after use; swabs are to be exposed to sun and air daily or to be chemically disinfected. In all sick bays Chapin's aseptic technique is to be followed. The following health measures are emphasized: Daily bath; washing of hands after voiding bladder or bowels; use of one's own towel and toilet articles only; avoidance of exposure to droplet infection.

#### CRUISER AND TRANSPORT FORCE, U. S. ATLANTIC FLEET.

The Cruiser and Transport Force, United States Atlantic Fleet, had its beginning in the present war in the First Expeditionary Force, which sailed and arrived in France in June, 1917, in four groups, composed of the *Seattle*, *St. Louis*, *Charleston*, *Birmingham*, and *De Kalb*, two Navy troop transports (for marines), the *Henderson* and *Hancock*, and 14 Army transports with fuel ships, destroyers, and yachts. Troops of the Army and Marine Corps to the number of 12,261 were taken overseas on this expedition.

The cruisers escort the greater portion of all troops leaving America from ports of embarkation besides great numbers of cargo convoys; somewhat less than 50 per cent of American troops have been carried in naval troop transports of this force.

The commander of the Cruiser and Transport Force did not have charge of the conversion of merchant liners to troop transports, with the result that during the early months adequate and appropriate space was not allotted to the medical department on certain ships. For the same reason arrangements and installations for troop hygiene and sanitation were found to be inadequate. Criticism, based upon experience in actual service, has resulted in the correction of many defects whenever the vessels were available for alteration

without delaying sailing dates or at the same time that repairs essential to buoyancy and propulsion were undertaken. Naval constructors have been responsive to needs indicated by the medical department. The result has been exceptional facilities for the care of the sick and generous consideration of the dictates of sanitation in recent revision of specifications for conversion of merchant vessels to naval troop transports.

This does not mean that all ships of the force yet have wholly adequate or the most appropriate installations for air, water, food, disinfection, etc., but that the principles and desiderata are fully recognized and will be accomplished as speedily as military exigencies of troop transportation permit.

During the early summer emergency troops have been transported in excess of comfort and convenience, but without serious disregard for sanitation. In almost every instance the troops have loyally appreciated the facts of war and cheerfully accepted the inconveniences, the majority of which are imposed by considerations of safety for the ship. Their health seems to have been quite as good on naval transports as in training camps.

The general principles involving the relation between the naval medical department of ships and Army personnel embarked were well embodied in "Regulations for Internal Administration of United States Naval Transports," dated September 15, 1917. The details vary as widely as do the *Leviathan* and *Lenape*, and are worked out by experience gained during the first trips by personnel on board with the advice of the force medical officer. Medical officers of newly commissioned transports derive great assistance from personal visits to active transports while they are in port. It has been quite impracticable to standardize details on converted ships, but standardization will be applied to ships now building. The Army medical department was requested to prepare a booklet containing the main features of the duty of Army medical personnel embarked for passage, and this will soon be issued at the port of embarkation. The use of this booklet at camps should prepare newly commissioned Army medical officers for their duties on board ship.

The naval medical department on board naval transports virtually operates as a hospital to which Army medical officers, holding sick call in various compartments occupied by their units, transfer, through the Army medical officer of the day, such sick as require bed treatment. While the senior naval medical officer has full responsibility for sanitation and care of the sick, he must depend upon Army medical officers for assistance in the sanitary inspections and enforcement of hygiene in their compartments, latrines, mess halls, etc. Such assistance has rarely been wanting.

There are few problems arising in transports which do not have some relation to sanitation; so that commanding and executive officers and first lieutenants constantly consult medical officers. The force has been fortunate in having medical officers competent to furnish valued suggestions. Many junior medical officers are qualifying themselves to justify their nomination for senior surgeons as the transport force expands. In this matter of training medical personnel the transport force tends to become self sustaining. Through the assistance of the Mayor's Committee on National Defense over twenty

of the municipal and private hospitals of New York City extended to naval medical officers the privileges of attendance and actual participation in their clinics beginning March, 1918. Comparatively little time is available for study at these hospitals, yet they have been of considerable assistance in familiarizing certain newly appointed officers with the best accepted technique in the laboratory, in medicine, surgery and sanitation. A considerable number of medical and dental officers of the Reserve Force and former National Naval Volunteers have served on cruisers and transports and, with few exceptions, rendered creditable service.

The force sustained a most regrettable loss in the death of Surgeon Lindsay Cochrane Whiteside, United States Navy, on the occasion of the sinking of the *President Lincoln*, immediately after he had superintended embarking all the sick in boats and the hospital corps on rafts.

Of the 43 transports, 22 have dental surgeons permanently assigned and there are 8 in the cruiser force. Besides these there are two dental officers, detailed to the offices of the force commander, who are constantly making voyages with their portable outfits in the smaller transports and cruisers which have no regularly assigned dentist.

The wisdom of detailing a pharmacist to each transport to relieve medical officers of responsibility in routine clerical work and hospital corps details is apparent to all concerned.

Like other branches of the service, men of the hospital corps have received much practical, systematic training on board; this first-hand training and didactic instruction has been valuably and most generously supplemented by practical work in the various civil hospitals of New York City, the arrangements for which have been constantly handled by Dr. J. G. Young, assistant to Lieut. Commander W. S. Bainbridge, Medical Corps, United States Naval Reserve Force. The idea of receiving training during the few days in home ports was originally suggested by Lieutenant Commander M. B. Miller, Medical Corps, United States Naval Reserve Force. Similar facilities are offered in Philadelphia and at Hampton Roads, and hospital corpsmen receive instruction between trips through facilities under the control of the medical aid to the commandant of the district. The courses offered in New York City comprise:

General nursing.  
Operating room work.  
Laboratory.  
X-ray.  
Embalming.

Dispensary.  
Carrel-Dakin technique.  
Anesthesia.  
Dietetics.  
Genito-urinary.

Medical stores are issued direct to transports and cruisers upon requisition to the Naval Medical Supply Depot, Brooklyn, without reference to the bureau or the force medical officer. Acknowledgment is due the supply depot for prompt and complete deliveries in view of market and transportation conditions. Occasionally a few hospital stores and comforts have been accepted, because generously offered, from philanthropic organizations, but seldom if ever has there been acute need for them.

The installations on transports which are unusual in the medical departments of naval vessels, include disinfecting rooms, large steam

autoclaves, sanitary cans for troop spaces, folding pipe standees with canvas or woven steel bunk bottoms, electric throat spray pumps, compartment disinfectant spray pumps, diet kitchens, embalming outfits, three distinct isolation wards for different contagious diseases and special spaces for Army sick call. After extended consultation and correspondence with transports the bureau decided that the infrequent need of X-ray outfits hardly justified the expense, difficulties of operation and interference with other electrical fixtures and the utilization of space more needed for other purposes, incident to the installation of X-ray machines.

Troop transport sanitation has involved study and effort quite beyond experience in previous wars, due to the utilization of all available steamships of many kinds and the crowding to the utmost limit compatible with safety to life during the one to two weeks' passage.

Pneumonia and other communicable diseases originating in camps became so noticeable during the early winter that the force medical officer was directed to take passage on the *President Grant* and later on the *Covington* for the purpose of intimate observation and study of troop-ship sanitation. The immediate result was a first-hand understanding of naval and Army interrelations and the adoption by the War Department of the principle of advance Army sanitary details, boarding, and learning their duties prior to general troop embarkation.

Aside from his other general duties as aide in policies and correspondence, the most important function of the force medical officer has latterly consisted in frequent ship inspections and dissemination, from one ship to another, at the principal port of embarkation, of valuable information gained. He rarely fails to gain some suggestion of probable use to others from an inspection or conference with the medical officers who work out their own solutions of the new problems frequently arising. As a member of the board for increasing troop carrying capacity he finds it difficult to compromise between military exigency and the accepted dictates of hygiene and sanitation, usually reluctantly waiving the latter for the former. Almost invariable cooperation between Army and Navy medical officers has rendered this policy a safe venture. An additional medical officer with transport experience is detailed for inspection of ships at a southern port of embarkation.

In December the equipping of each fireroom, engine, dynamo, and auxiliary room of transports and cruisers with portable sanitary scuttle butts was recommended. They have also been authorized for the battleship forces and, if furnished, should diminish the recently higher prevalence of communicable diseases in the engineer's force.

The Navy Department, early in the year, tendered the use of its transports on return voyages to the War Department for returning Army sick and disabled up to maximum allotted capacity, in excess of Navy needs, for the various classes of sick, including totally bed-ridden, ambulatory surgical, tuberculous, insane, and convalescent patients with the proviso that the Army should furnish, when requested, any additional personnel required for the return in comfort and safety of large numbers of sick. This was done with the distinct understanding that the Navy assumed no responsibility for returning all the disabled. The department also expressed its readiness to man

and operate any equipped hospital or ambulance ships which the War Department might provide. Gradually increasing numbers of disabled men are being returned to home ports with all the satisfaction that could be reasonably expected. The practice has amply justified the use of our limited accommodations for the sick and continually gives rise to new, important, and interesting problems.

Under agreement with the War Department the remains of all troops dying on board transports are embalmed and incased by trained naval hospital corpsmen under supervision of a naval surgeon for return to home port. The Navy deceased are likewise cared for on transports and on cruisers wherever caskets can be carried, improvised, or obtained.

While the Navy has held to the only logical and tenable principle that if the Army will embark clean, whether in home ports or overseas, the Navy will transport free from infection, naval surgeons have undertaken to limit by isolation or to eradicate by disinfection such contagions as may unavoidably escape detection through necessarily hurried embarkation. For example, there is imminent danger of bringing home both typhus and trench fever, transmitted by body lice, unless effective delousing is accomplished before embarking passengers and disabled men in overseas ports. In all probability additional delousing will frequently be required on board and after landing at home ports. In this the Navy stands ready to do its full share within the limits imposed by conditions on shipboard. Ships crews are given toxin-antitoxin immunization against diphtheria as shown to be required by the Schick test and cultures are taken when required to determine the presence of carriers of cerebrospinal meningitis and diphtheria. Fortunately thus far there have been few cases of meningitis and relatively few of diphtheria considering the widespread epidemic in New York last winter and spring, and there has been no occasion for searching for typhoid carriers.

Posters and booklets on the avoidance of communicable diseases devised by Lieutenant Commander W. D. Owens, Medical Corps, United States Navy, besides those furnished with bulletin boards, lantern slides, and films for sex hygiene propaganda by the Social Hygiene Instruction Division of the Commission on Training Camp Activities are extensively used by naval surgeons in their lectures to crews to limit venereal diseases and the disability resulting therefrom.

The medical department of this force has received material assistance from the sanitary adviser (Public Health Service) to the medical aide to the commandant of the third and fifth naval districts and most valuable suggestions and information from Army officials with whom they have been associated. Relations with Colonel J. M. Kennedy, Medical Corps, United States Army, chief surgeon, port of embarkation, and his staff of able assistants have given both pleasure and profit to naval medical officers at this port.

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The bureau has been in close touch with the work of Captain C. N. Fiske, Medical Corps, United States Navy, and of his assistant, Commander J. J. Snyder, Medical Corps, United States Navy, and rec-

ognizes to the full the value of their able and devoted service in connection with the cruiser and transport force.

*U. S. S. President Grant.*—The officers and crew number 662. The designated transport capacity is regarded by the senior medical officer as too large by 1,500. The percentage of sick for the year was: Navy personnel, 0.002; Army passengers, 0.00725. On the first voyage 30 cases of measles developed. On the second voyage there were 58 cases of lobar pneumonia, with a mortality of 12.06 per cent. Forty-four cases were among negroes destined for a stevedore regiment.

*U. S. S. President Lincoln.*—Naval complement was 583 on an average. In the course of two voyages on which many thousands of men were transported, 35 cases of pneumonia were treated without a death. A gas chamber has been placed aboard for wholesale disinfection of mattresses and clothing. Special arrangements were made for the fresh air treatment of pulmonary cases. Posters and booklets on personal hygiene, gotten up by the senior medical officer of this ship, Lieutenant Commander W. D. Owens, Med. Corps, United States Navy, have been used on all vessels of the Transport and Cruiser Force.

*U. S. S. Leviathan.*—Venereal disease furnishes the sore spot in our statistical reports, and it is not due to the service or the innate depravity of the sailorman, setting him apart from his fellowmen. The training of our young men in social prophylaxis should not be left until they enter the naval service, and then thrust upon the medical officer. It should begin when they reach the age of puberty, or even earlier, and the dangers of venereal disease should be put vividly before them.

While he is at home in a small town or village or on the farm, public opinion generally sets the pace and a certain amount of restraint is exercised but, when the young man goes from the above restraints into the great world, and is surrounded by temptations which he only knows by hearsay, the wonder is, not that he falls, but that he falls so seldom.

The parable of the sower aptly applies to lectures on sexual hygiene, social or venereal prophylaxis. The seed must be planted before the soil becomes barren and stony.

#### HOSPITAL AND AMBULANCE SHIPS.

Vessels of this type must be prepared and held ready in advance of the acute situations which make them necessary, because these exigencies usually sweep aside the claims of everything not bearing directly upon the immediate destruction of the enemy. At the commencement of hostilities the Navy possessed one hospital ship, the *Solace*, a vessel which has been in use in one capacity or another for 20 years and still renders good but limited service. The bureau's repeated efforts to secure hospital ships in number and construction on a par with the needs of a growing fleet finally lead to a ship being laid down in Philadelphia which had been conceived and designed on the most elaborate scale. When war began work on this ship was naturally discontinued, as she was not considered sufficiently far along to be available within any reasonable time. Two ships, the *Saratoga* and *Havana* of the Ward Line, were assigned as ambulance ships,

but more pressing work took precedence of their conversion and months passed before anything was accomplished on them. Finally on March 28 and January 24, 1918, they were commissioned as the *Mercy* and *Comfort*, respectively, and became available for the medical department. Each is of 10,000 tons burden, has a capacity of about 300 patients, and is admirably equipped for the work intended. If they could make two round trips a month they could bring home from abroad 1,200 sick or wounded in that period, but such expedition in loading and unloading is not to be expected. Their combined capacity could not well exceed an average of 600 to 900 a month. It was, therefore, with surprise that, while struggling to get these vessels ready for its own use, the bureau learned that the medical department of the Army was relying on Navy hospital ships to return the sick and wounded from overseas at an anticipated average of 5,000 per month. Cordial and sincere assurances of the utmost willingness to help were given, but, while every available bunk and the services of every doctor and sick attendant in excess of the Navy's own needs were put at the disposition of Army authorities, it needed only a brief representation of the Navy's resources in hospital ships to make it clear that these ships could not be depended on to do more than supplement the Army's own provisions. After conference and correspondence it was decided to utilize returning troop transports for bringing home at each voyage so many of the Army's sick and wounded as could receive *adequate* supervision and care.

A transport's capacity for troops going to the front is in no sense an index of its availability for caring for returning sick and wounded and depends less on tonnage and speed than on actual facilities for berthing, guarding, confining, isolating, nursing, bathing, and feeding various types of patients—tubercular, insane, contagious, bed-ridden and helpless. Details of the ship's structure count more than the number of attendants when it comes to accessibility of toilets, disinfection, preparation of dressings, serving of food, etc. A soldier going to the front can stand a good deal during a 10-day voyage that can not be inflicted on a sick man whom it is proposed to win back to health. For the soldier to go up two or three decks for air and food, for him to walk 75 yards forward or aft to a toilet is nothing. A man on crutches would find these conditions prohibitive in the calmest weather.

An estimate of the help which could be rendered, based on a study of these considerations, was made and plans were elaborated for the conduct of affairs. Of the present fleet of vessels under Navy control the combined capacity on a single voyage for returning sick would be in round numbers as follows:

Total bedridden sick, in sick-bay bunks, requiring a maximum of attention	1, 400
Total of patients requiring surgical dressings, to be accommodated in troop staterooms	7, 800
Insane	600
Tuberculous patients in isolation or on open decks	975
Patients requiring no attention and in officers' quarters	4, 900
Convalescents having practically the status of well men so far as berthing, etc., is concerned	76, 000
Total	91, 875

The actual individual capacity for carrying sick varies with the ship. The commanding officer determines it on the advice of the naval surgeon attached thereto. By judicious distribution of patients to the different ports at which fresh troops disembark congestion can be avoided and a constant flow homeward maintained. It should never happen that a ship of even small capacity returns empty and yet many of the transports, among them the largest vessel afloat, have so returned, while ships at other ports were filled to capacity and evacuation officers might have yielded to the temptation to overstrain them for the wise arrangement that left the determination of the number of patients to the seagoing officers. By way of aiding further in this work two medical officers of experience have been detailed to permanent duty along this line in ports of embarkation of sick, because the task of evacuation must inevitably become heavier as our part in the war increases. The service of distribution must be simplified and accelerated and this can only be done by having prompt notice of ships due in the various ports and advance knowledge of their capacity, so as to utilize it to the full.

Medical officers of the Navy serving on transports have been directed to exercise extreme caution when insane patients, whether officers or enlisted men, are committed to their care while in passage to the United States. It will usually be impossible, on so long a voyage, because of their limited number, to count on the services of hospital corpsmen for the safekeeping of patients of this class. Application should be made to the commanding officer of the ship to provide a military guard, standing watch constantly to prevent any lamentable accident. These men and all hospital corpsmen should be told in the most explicit manner what to do and have all formal written instructions from the medical officer.

When transports or other vessels require water from ashore for drinking purposes it is chlorinated. Several conferences have been held between bureau officials and the manufacturers of the plants required for the quick and economic chlorination of water, and one of the large transports has been equipped with the necessary device. Experiments are under way to determine its efficiency.

The messing arrangements for troops are among the most important and difficult features of transportation on account of the limited spaces and the large number of men to be served. On the U. S. S. ———, whose crew is 500 odd officers and men, and whose accommodations for troops is 2,570 officers and men, the following working plan has been adopted:

The men line up in 8 columns and file past 8 rows of food containers, where the different articles of food are served by special mess men. By this method 100 men per minute are served. There is no space for tables, and the men pass on and find places to eat on deck. When the men have finished eating they re-form on the covered walk deck, scrape their plates into a line of garbage cans and enter the scullery 10 at a time. Here are located 20 tubs, each supplied with a steam pipe and hot fresh and salt water, to permit washing and rinsing. Thirty men a minute can pass through the scullery.

The U. S. S. *Salace* has been frequently described in previous reports and needs no further reference here. The two vessels assigned to the medical department and converted since war was de-



clared into hospital ships called, respectively, the *Mercy* and the *Comfort*, were formerly in the service of the Ward Line. Each is of 10,000 tons displacement, is 430 feet long, and has approximately the following complement: Medical officers, pay officer, chaplain, 20; officers and crew of the ship (navigation, engineering, etc.), 275; hospital corpsmen, 100. As they resemble each other in all but minor details, a description of one serves for both. In adapting these ships to medical purposes the endeavor has been to place the wards for the more serious cases, the operating rooms, laboratories, etc., on the upper decks to obtain a maximum of natural light and ventilation. The lower decks have been utilized for the rooms and wards intended for convalescents and patients in transit. Accordingly, on the upper or promenade deck, going from forward aft, are the operating suite, the ward for sick officers, rooms for convalescent officers, and wards for the isolation of contagious cases. On the deck below, the surgical ward is situated directly under the operating suite and connected with it by an elevator. Next come the dental office, a dressing room, diet kitchen, dispensary, X-ray room, laboratory, medical ward, and all the necessary appurtenances belonging to them. These two decks are above the hull and have through and through ventilation and an abundance of light by very large port-holes. On the main deck are located the prophylactic room, the X-ray developing and study room, the operating room for eye, ear, nose, and throat cases with its ward; a genito-urinary operating room and ward and a large ward for convalescents. The rest of the ship is taken up with quarters for the officers, crew, and hospital corps, and with storerooms and machinery.

The operating suite consists of a general operating room, sterilizing room, instrument room, anesthetizing room, scrub-up room, and pus operating room. The general operating room contains two operating tables, each having its own accessories, such as instrument tables, dressing sterilizers, instrument cabinets, immersion bowls, stools, etc. The decks are tiled and the bulkheads are sheathed with galvanized iron coated with white enamel paint. The natural light in the operating room is good, but a fine set of electric lights is installed over each operating table and at various places along the bulkheads. The pus operating room is similar in equipment and finish. The only difference between these operating rooms and those found ashore lies in the necessity of securing everything immovably to the deck. The instrument room is provided with a complete assortment of surgical instruments of every type and with appropriate cabinets for storing them when the ship is underway. The surgical ward below the operating room has space for 54 bunks, arranged in two tiers, and can at a pinch accommodate an even larger number of patients. The bunks are of tubular iron with wire woven springs and many of them are fitted with the Goetz adjustable springs for placing patients in the Fowler position. Attached to this ward are water-closets and bathrooms. Just abaft the ward is the surgical dressing room with a complete equipment of tables, sterilizers, instrument cabinets, irrigators, and bowls with running hot and cold water, etc. The provisions described above, together with the genito-urinary operating room and an additional table in the main operating room, make it possible for 6 operating teams to work simul-

taneously should emergency make it necessary. For purposes of administration the X-ray department, the eye, ear, nose and throat department, and the genito-urinary department are under the general supervision of the surgical department. The wards and special rooms for sick officers connect with a mess room, and a dumb waiter runs from it to the galley. Aft of the sick officers' mess room is the linen room. Between this point and the stern of the ship are located 5 contagious wards, with a total of 44 bunks, and available space for additional bunks in an emergency. The wards are operated separately and each has its own bathroom and toilet facilities. Food is distributed from a common pantry direct to each of these wards, the mess gear being thoroughly disinfected after use. The contagious suite includes a room where convalescents from contagious disease receive their final bath and put on clean clothes before being discharged from quarantine. The last inclosed space on this deck is a solarium available as an extension of the contagious department.

Aft of the surgical ward are the administration offices, pay office, and the office of the dental surgeon. The medical ward for purely medical patients confined to bed contains 36 bunks and is outfitted in every way like the medical ward of a hospital ashore. The genito-urinary and convalescent wards contain 136 bunks, which number can be increased at need to 200.

Each ship is equipped with a cold-storage plant holding fresh provisions for three months or more. The refrigerating machine will produce, under favorable circumstances, a ton of ice or more a day. The distilling plant, consisting of evaporators and distillers, has an output of about 20,000 gallons of fresh water per day. The galley or kitchen and the commissary department are under the direct management of the paymaster of the ship and can provide foods of any kind, except the special diets, for 600 people. The ship's laundry, on the main deck, is equipped with the most modern type of electrical machinery. The most valuable adjunct in the treatment and feeding of the sick is the milk emulsifier, popularly known as the "mechanical cow." The milk produced by this machine is made from a combination of unsalted butter and skimmed milk powder and can be made with any proportion of butter fat and proteins desired. This machine will produce 15 gallons of cold, pasteurized milk in 45 minutes. The electric ice-cream machine, controlled by one man, makes 10 gallons at a time and is supplemented by small freezers for preparing individual diets for the sick.

In addition to the provisions enumerated may be mentioned the carpenter shop, machine shop, electric shop, the storerooms for dry provisions and for medical and surgical supplies, the disinfecting plant, and apparatus for various forms of electric treatment and hydrotherapy.

For the amusement and recreation of the sick and the convalescent the Government has provided a good fiction library, while various patriotic and benevolent societies and individuals have contributed such valuable accessories as a moving-picture machine, a pianola, various games, subscriptions to current magazines and papers. The ship's chaplain, in addition to his strictly religious duties, has charge of amusements and entertainments. Each ship has a total patient capacity under ordinary conditions of 350.

Hospital Ship No. 1 was laid down at the Philadelphia Navy Yard in 1916 but work on it was practically discontinued at the outbreak of war. It is hoped that during the course of 1919 this much needed vessel, the first to be planned and built in the United States Navy expressly for hospital purposes, will be available for service.

There remains unfilled at present a real need for a few small ambulance vessels suitable for cruising in the harbor of New York or the lower waters of Chesapeake Bay to visit patrol boats, removing from them sick or injured men and taking them to hospital, or renewing their medical stores and furnishing transportation to a doctor to inspect or treat the personnel. Small vessels of this type would enable a medical officer to board ships of the Naval Overseas Transportation Service on their coming to anchor and to remove with dispatch patients needing hospital care.

#### U. S. PACIFIC FLEET.

On January 1, 1917, the organization of the fleet comprised an active force, a reserve force, and a coast torpedo and submarine force. When on January 13 the U. S. S. *Milwaukee* went ashore and became a total loss, the crew was gotten ashore by means of boat-swain's chairs and breeches buoys, many being subjected to severe exposure in the operation for which some needed hospital treatment. The crew was quartered in a lumber camp for several days after the accident, and here also they suffered some exposure, but, in spite of all this, the general health was good.

German measles, measles and mumps had been epidemic among the civilian population all along the Pacific Coast. The recruiting of such enormous numbers as mobilization required naturally brought all these diseases to the concentration points in great abundance. There was neither time nor opportunity for the efficient segregation or isolation of individuals at the training station. The ships must have the men and quite naturally these contagious diseases broke out on shipboard, later in epidemic form. The *Frederick*, with drafts for the *Pueblo* and *St. Louis* carried some 1,500 men from the naval training station at San Francisco to Cerros Island, Mexico, where she delivered her drafts already full of measles.

During the time spent at sea by the cruising squadron the medical officers of the several ships inspected the personnel recently received on board, corrected health records, and gave necessary cowpox and typhoid vaccinations, so that when the squadron arrived at Panama all were properly protected.

The squadron arrived at Bahia, Brazil, on June 14 and was granted pratique. The health of this port was declared good by the local authorities but investigation brought out the fact that plague was epidemic and that cases were appearing constantly in different parts of the city. There were isolated cases of smallpox and of a severe and fatal type of malaria. The American consul stated that venereal diseases were very virulent and advised against general liberty for the men, both on account of health conditions and of the possibility of disturbances because of the large number of Germans from interned ships who were working in the cafés likely to be visited by the enlisted men.

At Montevideo the British hospital was the one mainly used by our squadron, and the Chief Surgeon, Dr. Garcia Lagos, a physician of wide reputation, devoted his best efforts to our men.

One patient with spleno-medullary leukemia was sent to the Maciel Hospital to have the benefit of X-rays which was the only treatment offering the least hope. The case was one of most aggravated type and the patient died in less than a month after entering the hospital. The members of the medical fraternity of Montevideo were most courteous to our medical officers and arranged visits of inspection to all the important hospitals and medical schools, etc., of the city.

On the way to Buenos Aires, a sad accident occurred on the *Pittsburgh*. The saluting guns had been removed from these ships and 3-inch guns were used with reduced charges made up on board. In reloading 3-inch cartridges with saluting charges, the used percussion primer is punched out from the base with a special tool. By accident a loaded cartridge got mixed up with the empties and in attempting to drive out the primer the loaded cartridge exploded, shattering the skull of one man who died 40 minutes later. Another man sustained compound comminuted fractures of right leg and left wrist, with extensive destruction of bone and soft parts. This man was sent to the British hospital at Buenos Aires, where he was placed under the care of Dr. J. O'Connor, who writes that the patient is improving, and that the bone in the leg is slowly reforming.

All the ships in this squadron were, more or less, infected with German measles, the source being primarily the general infection of the civilian population on the entire west coast. The number of cases on the *Pueblo* amounted to about 10 per cent of the crew. This high incidence may have been because the disease is relatively rare among the exanthemata, and consequently there are fewer immunes. There were practically no serious complications or sequelae and the epidemic was over after about two and one-half months.

All ships were infected with mumps and the *Pittsburgh* still has the disease. Every conceivable precaution has been taken but the disease still persists.

Two cases of scarlet fever occurred, one on the *Pittsburgh*, the other on the *Pueblo* in Montevideo. Both were contracted ashore, but efficient care has prevented the spread of the disease. Two cases of cerebro-spinal meningitis have come to the fleet surgeon's notice. One fatal case developed on the *Huntington* in May, a second on the *Pueblo* early in September.

Venereal diseases have given much trouble, gonorrhea, chancroid, and syphilis being very prevalent. Chancroid infection has been particularly virulent, the majority of cases showing phagedenic characteristics and resisting treatment. Repeated talks on sex hygiene and venereal prophylaxis, etc., have been given to the men of the squadron, but apparently this has availed little. More strenuous methods are needed to prevent the great loss of efficiency due to venereal disease. The squadron has had about 4,000 sick days on account of this trouble.

With the exception of the epidemic of measles, which lasted about two months, and the venereal troubles, the general health of the squadron has been excellent. The naval reserves and volunteers ver-

soon began to show the healthful influence of ship routine and proper care. The fine appearance of our men has often been remarked on by strangers on shore.

The cruising has been almost entirely in semitropical and tropical waters, so the regular issue of clothing has answered every purpose. Recent shipments from the supply officers at home have included the winter clothing adopted by the Navy Department. Wool sweaters, mufflers, and wristers have been received as gifts, and have been distributed to officers and men.

It has been the aim of all to make this squadron self supporting in all respects, therefore with the splendidly equipped operating rooms on these armored cruisers every bit of surgery possible has been done on board. Only in cases where hospital treatment was absolutely imperative have patients been sent to civilian hospitals here. Only nine such cases occurred while the fleet was in South America.

The fleet surgeon has inspected in detail the medical departments and general sanitary conditions of the several units. In every case the departments have been found efficient and well organized, showing the zeal and devotion to duty of our medical officers and hospital corpsmen.

The dental surgeon on board the flagship has had plenty of work to do with a clientèle of over 3,000 persons. The office is well equipped in all respects. While the armored cruisers were with us an attempt was made to systematize the dental work of the squadron, each ship being assigned certain days and hours when appointments could be made and dental work done.

*U. S. S. San Diego.*—A suggestion well worth considering and one which has often been heard aboard ship in recent years is to the effect that much saving could be effected, both for the Government and for the individual members of the numerous officers' messes aboard ship, if these were consolidated under a single commissary management. Under the present system the Government pays for a cabin steward, a ward-room steward, a junior officers' steward, and a warrant officers' steward on all of the larger ships. These men go ashore separately and make individual purchases for their respective messes, which vary in number from one (the captain's mess) to 20 or more officers, as in the case of the ward-room mess. Better prices and better supplies could be obtained and the work of bringing their purchases off to the ship could be reduced if one man did the buying for all. By giving him the pay of a warrant officer a good man could be secured for the position of officers' commissary steward, and the expense to the Government would still be less than under the present system.

#### U. S. ASIATIC FLEET.

It does not appear that the health of the personnel of the Asiatic Station for the year 1917 has been satisfactory. The complement of the station is about 10 per cent less than it was during the previous year, yet the deaths, primary admissions, and total sick days show an actual increase in numbers. There were 26 deaths against 25 last year, 2,685 primary admissions against 2,335, 48,485 total sick days against 42,611 for the previous year.

Of the 26 deaths, 15, or more than one-half, were from external causes. Nine of the violent deaths were caused by explosive accidents on board the submarine boats. Eight lives were lost in the accident on board the *A-7* and the accident on board the *A-2* caused one death. These accidents occurred during ordinary surface runs and independent of diving evolutions. The boats were in the vicinity of the navy yard, Cavite, P. I. It is understood that the explosions were caused by defects which do not exist in boats of more recent design. There was one death from drowning by falling overboard while stepping from a sampan to the gangway. The ship was at the time moored in the Whangpoo River at Shanghai. The force and character of the current in this river are such that falling-overboard accidents are very likely to result in drowning. There were three deaths caused by fracture of the skull. In one the victim was knocked from the rail to the deck while coaling ship; one was an unwitnessed accident in the engine room of a torpedo boat; one was due to motorcycle speeding. One very unusual form of death was due to shark bite. The victim was swimming in rather deep water off the Cavite Yard when he was struck from below by a large shark. The bite scraped the backbone, completely eviscerating the abdominal contents. There was no further mutilation. There was one death by suicide from gunshot wound of the chest. All of these fatal accidents were, of course, carefully investigated and wherever possible safeguarding and precautionary measures against further danger were established.

Of the 11 deaths from natural causes, two were from pneumonia and one each from abscess of the liver, epilepsy, cerebro-spinal fever, myocarditis, nephritis, scarlet fever, smallpox, and tuberculosis. Three of these diseases—scarlet fever, smallpox, and abscess of the liver—are among the dangers to which foreigners living in the Orient are specially subjected.

The severity of the outbreak of smallpox at Shanghai during the winter of 1917-18 is shown by the statement of the American consul general that for 20 years the deaths among foreigners ranged from 0 to 21 in a year, while the deaths in 4 months of 1917-18 had reached 63.

There were five cases of smallpox on board the United States naval vessels at Shanghai, one of which was quickly fatal. Three of these cases were mild, the symptoms being modified by vaccination and one was a case aborted by vaccination.

All of these cases were carefully investigated, particularly in regard to their vaccination records. The fatal case occurred in a hospital corpsman who had charge of his own health record. He stated to me during his illness that he had never been successfully vaccinated, though the vaccination sheet in his health record showed that he had been. Special pains should be taken in regard to the successful vaccination of hospital corpsmen in particular when circumstances are such that they have access to their own health records. During this outbreak it did not appear that any case was contracted from one of the others. Each infection was evidently acquired on shore and there was no spreading of the disease on board.

The aborted case of smallpox was the first case of this kind that the writer had ever seen. There was a history of ample exposure to

a severe type of smallpox during the early eruptive stage, but before the disease had been diagnosed. Vaccination was given on the fourth day following this exposure. On the eleventh day violent initial symptoms of smallpox set in, except that there was no severe pain in the back. There was intense headache, attacks of vomiting, and a temperature between 102 and 103. Fortunately the vaccination showed unmistakable signs of taking. The symptoms subsided on the following day and the disease ran the course of ordinary vaccinia.

The medical officers of the fleet have been particularly active in endeavoring to reduce the amount of venereal disease. By means of lectures they have sought to instruct the enlisted personnel concerning the true nature of these disgusting infections. These talks have been free from any sensationalism that would tend to arouse morbid curiosity, such as gross exaggeration of the manifestations of these diseases, or the exhibition to them of disgusting and repulsive pictures. At opportune times the ships' companies have been circularized by warning leaflets and also leaflets containing matter that would appeal to their patriotism and better moral natures. As an instance of the latter kind the strong message of Lord Kitchener was printed and distributed throughout the fleet. The chaplain, working independently or with the medical officer of the ship when there was opportunity, has done much to support and diffuse the best teachings in these matters.

Without doubt these various measures for the suppression and control of diseases of this class have been productive of good. Of course one is not warranted in drawing general deductions from single incidents, but the following one is so striking that it seems worth mentioning here: During the past year one of the ships of the fleet visited a certain port for a period of one month and acquired 79 venereal infections; six months later the same ship visited the same port for the same period of time and with an increased complement, but on that occasion only 31 infections were acquired as against the 79 of the visit six months previous. It is difficult to think of any other factor than the above teachings as being responsible for this marked change for the better.

Of course all of these dangers are intensified for the enlisted man of the Navy when he is ashore. There are many factors which close to him the avenues of entertainment which he is accustomed to find at home. In the first place public entertainments do not exist in the Orient, or, if so, only in a form which is of no interest to him. The language of the people is so strange that he can never hope to learn more than a word or two of it. There is no opportunity to make friends. When he has seen the strange people, streets, and customs he has practically exhausted all legitimate entertainment. He is not admitted to the local foreign clubs and he is never seen about the hotels of the better class. If he is tired from going about as a legitimate sight-seer and wishes to sit down for a rest there is no respectable place open to him. When he wishes to meet a friend by appointment, or to go in somewhere to warm himself, to avoid a passing shower, or for any other purpose, there is but one class of places open for him, and it goes without saying that he is found there.

These places are both immoral and insanitary. It is natural that the effect of such unfavorable environment should be reflected in the

statistics of sickness from this station. Of course the frequenting of these places is against the better natures of most enlisted men, but it is to be expected that in the end the force of circumstances nearly always has its way. In order to do away with these injurious and corrupting circumstances and to supply the legitimate needs, in this respect, of the enlisted man while on shore the following plan has been suggested: As soon as the ship arrives in port and it is decided to grant liberty a waiting room is to be hired at some convenient locality on shore. The room should have a table, a sufficient number of chairs, and toilet facilities. There should be an enlisted man in charge with instructions as to his duties. No further expenses need be incurred. The object is merely to provide a place where the enlisted man may meet his friends by appointment, stop for a rest, write postal cards, leave packages to be called for later, get warm, wait for the boat hour, and have many other practically necessary conveniences. Under the stimulus of practical use this plan would probably become elaborated and adapted into something that would meet the enlisted man's various, legitimate needs. In the past these needs have been supplied by places with unsavory reputations or worse.

It appears to be the opinion of those who have had a tour of duty on this station that service conditions here are attended with a certain amount of mental and physical deterioration; that this deterioration may be recovered from if the period of service has not been too greatly prolonged, but that after a certain length of service in the Philippines the individual is unlikely to regain his normal efficiency.

This opinion is believed to be substantially correct. Tropical conditions are not relieved but are aggravated in the life aboard ship. A person must have a young and vigorous constitution to successfully perform his duties aboard ship in Philippine waters and not show signs of lowered vitality if the period of service is too prolonged.

It is therefore recommended that under peace conditions 24 months' duty in these waters should count as a cruise; that those enlisted men whose enlistments expire out here should not have the privilege of reenlisting with the view of remaining on this station. They should be sent home at the termination of any enlistment which has had as much as two years' duty on this station.

The duties of the medical officers of the Asiatic Fleet have been performed under widely varying conditions owing to the wide extent of the Asiatic Station. Under the command of the commander in chief ships have cruised as far north as Siberian waters and as far south as Australian waters. Also the gunboats of the Yangtze have penetrated well into the interior of China. Naturally the effect of such wide geographical distribution is reflected in the statistical returns of diseases. The pneumonias and influenzas are from Vladivostok; the smallpox, scarlet fever, and diphtheria are from China; the malarias, dysentery, and other tropical diseases are from the Philippine Islands; and the measles and mumps are imported from the United States.

The work of the medical departments both on shore and afloat has been performed efficiently. Of course in reviewing the work for 1917 it is to be expected that individuals would have different opinions as to which activities should be considered as having the highest



values for service efficiency. Personally, the fleet surgeon has been impressed by (a) the advanced character of the laboratory work done at the United States Naval Hospital, Canacao, P. I.; (b) the constructive work accomplished for the improvement of the health and living conditions of the native inhabitants of the Government reservation at the Naval Station, Olongapo, P. I.; (c) the successful efforts of the medical officers of the Yangste River gunboats in protecting the crews from the surrounding pestilence, and by their conduct under the attacks of Chinese revolutionists from ashore; and (d) the betterment in organization and new construction at the Naval Hospital, Yokohama, which broaden and increase the usefulness of that establishment.

*U. S. S. Brooklyn.*—During the course of military operations around Vladivostok, Siberia, offers of assistance in the care of the wounded were made to the commanding general of the Czech forces, through the American consul, by medical officers of the ship. On July 5, an engagement having taken place the previous day, 140 calamities from Vladivostok, 73 Czech and 4 Russian wounded were received for treatment. The *Brooklyn* at this time was moored with her stern to the dock. A storehouse on the dock, which had previously been used as an amusement hall for the crew, afforded a ready means of accommodating the wounded, a sufficient number of wards and blankets having been sent from the ship and the feeding being done from the ship's galley. The majority of the wounds were from rifle bullets, in some cases complicated by fracture of neighboring bone. All the wounds showing infection were treated with Dakin's solution. A few minor operations, such as the removal of superficially located bullets, the amputation of toes and fingers, were performed, and all did remarkably well. No death occurred among the wounded men received for treatment. One case of gunshot wound with fracture of the thigh was transferred to the Russian naval hospital on account of the impracticability of applying an extension while the patient was lying on a cot; 4 other cases were transferred to the Russian naval hospital. The enthusiasm and interest manifested by the officers and men of the *Brooklyn* in these wounded men were very touching. Money was promptly collected among the crew to supply them with tobacco and their clothes were portioned out and scrubbed by members of crew.

#### NAVAL HOSPITALS.

The professional work done at our naval hospitals has been excellent. In all of them unusual problems have developed in the organization and administration, through the very large increase in the number of patients and changes and increase in the professional staff. In some cases it has been necessary to improvise quarters for the admission of female patients consequent upon the employment of women, enlisted at navy yards and elsewhere for clerical duties. In most of the hospitals extensive repairs or new construction has been going on. Abroad, the establishment of our Navy base hospitals has often called for the display of much tact, patience, and ingenuity. In one case the best available building was a convent built centuries ago and wholly lacking in the most essential sanitary provisions.

In another case the selection of an appropriate site was rendered difficult through conflicting local needs. In Boston, Philadelphia, and New York the excess of patients has been temporarily divided among various city hospitals and the supervisory care of these patients, including the handling of their papers, the upkeep of medical records and case histories, their assignment to duty or other disposition, has devolved upon the commanding officer of the naval hospital. Systematic didactic instruction and practical illustration regarding military methods and routine has been given to a large number of medical men affiliated with the service. Many of them have been able to benefit by special lectures and clinical demonstrations which put them en rapport with the latest developments of medical and surgical treatment. On the strictly professional side also the work has been heavy. Epidemics of infectious and contagious diseases, pneumonia, tonsillitis, and empyema have called for the most approved modern treatment. Such treatment has been uniformly given with highly satisfactory results. Many carefully prepared reports of interesting cases or groups of cases have been sent to the bureau and been later communicated to the medical corps through the columns of the bureau's quarterly or weekly publications.

Early in the year it was arranged that Y. M. C. A. secretaries assigned to duty in connection with a specific training camp or ship should, when sick, have the benefit of medical treatment and hospital care with the status of officers and free of charge when they make application for the privilege.

In order to facilitate the work of the Federal Board for Vocational Education in carrying out the act approved June 27, 1918, providing instruction and training for disabled men who require it, the commanding officer of each naval hospital has been directed to afford every opportunity for interviewing injured men to the persons designated by the board as advisers to naval hospitals. Each hospital will notify its properly accredited adviser well in advance of a survey for discharge of patients so that this official may have ample opportunity to inform himself of the disabilities, previous industrial training, and other pertinent facts relative to such patients. Specific instructions covering this matter and a statement as to the desire of the Major General Commandant, United States Marine Corps, to retain men who possess skill in certain trades, have been issued to all hospitals.

At some of our larger and more centrally situated hospitals the interests of the patients have been furthered by the utilization of trained social workers aiming to coordinate and use to the best advantage the help offered by patriotic members of the local community. The trained social service worker helps to regulate the contact between these outside agencies and the patients. It is important that the enthusiasm and sympathy of friends and well wishers of the Navy, eager to meet such special needs as are not within the province of Government agencies, shall not conflict with essential military provisions or requirements and that efforts to promote contentment and happiness shall be so distributed as to yield a maximum of benefit to all. Furthermore, the social service worker is often in a position to assist the patients in personal matters which do not come within the scope of surgeons and nurses and for which the proper

prosecution of their professional duties affords them neither time nor opportunity, however willing they may be.

The organization of the hospital service according to naval districts has worked satisfactorily. An extensive dispensary service utilizing in the main small rented buildings adjacent to the water front where patrol boats come in, containing a surgeon's office, quarters for the hospital corpsmen on duty, and a few beds for patients provides for the receipt and temporary shelter and care of the sick in the personnel of the patrol boats. The dispensaries are under the direction of the medical aid to the commandant of the district. Patients whose condition demands hospital treatment are transferred to the base hospital and pass to the care of the medical officer in command of the principal Navy hospital of the district. Institutions of the United States Public Health Service or private hospitals with which definite arrangements have been made by the medical department are utilized when the principal naval establishment is too remote from a given dispensary.

By your order 21138-43 a naval hospital reservation or compound was established around the Naval Hospital, Philadelphia, as a separate institution from the Naval Home and the naval hospital has been placed under the control of the Bureau of Medicine and Surgery and under the direct military supervision of the commandant of the naval district. This removes the naval hospital from the jurisdiction of the Naval Home, and correspondence and other papers will no longer be forwarded through the governor of the Naval Home.

#### NAVY HOSPITAL SERVICE IN EUROPE.

The following is a list of the original five Navy base hospitals regularly planned and established by the bureau as soon as transportation could be secured for the personnel and equipment and the necessary local arrangements could be completed, given in the order of their beginning active service:

Brest: A	Beds.
-----	500
B	-----
-----	500
Strathpeffer	-----
-----	800
Leith	-----
-----	800
Queenstown	-----
-----	800

The first of these hospitals to receive patients was Navy Base Hospital No. 5, commanded by Captain H. C. Curl, Medical Corps, United States Navy. Much credit is due him and the staff, composed of the Philadelphia unit under Lieutenant Commander R. G. LeConte, Medical Corps, U. S. N. R. F., for the energy and ability displayed in this undertaking. The only available building for the purpose was an abandoned, antiquated convent without even the most primitive sanitary conveniences. It lacked plumbing and water supply and a vast amount of cleaning and repairing was necessary. The difficulty of securing labor and the scarcity of supplies in the local market hindered the prompt accomplishment of alterations and improvements but tact and persistence triumphed over every obstacle. Not only patients from our cruising ships but a large number of patients from the land forces have been treated here. Captain Curl has organized a medical supply depot at this point.

The other naval hospital at Brest has been utilized almost to capacity for Army patients. It is commanded by Captain L. L. von Wedekind, Medical Corps, United States Navy. The staff is the Brooklyn unit under Lieutenant Commander W. B. Brinsmade, Medical Corps, U. S. N. R. F.

The Navy base hospital at Strathpeffer, Scotland, with its adjunct of 50 beds at Inverness, is under the command of Captain E. S. Bogert, Medical Corps, United States Navy. The staff is the San Francisco unit under Lieutenant Commander S. Stillman, Medical Corps, U. S. N. R. F. Long and trying pourparlers delayed the active operations of this organization owing to local military considerations of great importance.

The Navy base hospital at Leith is commanded by Captain C. M. De Valin, Medical Corps, United States Navy. The staff is the Los Angeles unit, headed by Lieutenant Commander R. Smith, Medical Corps, U. S. N. R. F.

The Navy base hospital at Queenstown is commanded by Captain D. N. Carpenter, Medical Corps, United States Navy. The staff, headed by Lieutenant Commander G. A. Matteson, Medical Corps, U. S. N. R. F., is the Providence unit.

A naval hospital of 70 beds is in operation in London, under the general surveillance of Commander E. Thompson, Medical Corps, United States Navy, the bureau's representative at the American Embassy. Minor establishments with less elaborate facilities are available for the care of our sick at Plymouth (25 beds), Cardiff (100 beds), Killingholme (75 beds), Eastleigh (50 beds), Gibraltar (50 beds), Lorient (75 beds), Paulliac (125 beds), Genoa (100 beds), Corfu (100 beds).

To this should be added the available quarters for 15 sick at each of 20 naval air stations, and suitable provisions for 100 sick in connection with the Northern Bombing Station.

#### NAVAL HOSPITALS OF HOME AND FOREIGN STATIONS.

*Annapolis, Md.*—Work of repair and upkeep has gone on satisfactorily during the year. Five rooms and a bathroom have been added to the nurses's quarters. On September 10, construction was begun on 5 emergency buildings, consisting of 2 pavilions for general diseases, 1 for contagious cases, 1 for hospital corpsmen, and 1 for a subsistence building. The new buildings afford accommodation for approximately 125 patients and 50 hospital corpsmen. All cooking and messing operations will be conducted outside of the main hospital building. Dietetic appointments have been greatly improved by the establishment of a diet kitchen in which a great deal has been accomplished to make the special diets suitable, dainty, and appetizing. During the course of the year 41 major and 140 minor operations have been performed. The admissions during the year numbered 1,589, an increase of 740 over the previous year.

*Canacao, P. I.*—The specially constructed contagious ward has been completed though, through lack of funds, not on the scale originally contemplated. A large proportion of the contagious cases treated have come from the Army transports or may be traced thereto. Tents have been found very useful for cases of this type.

The ward itself, surrounded by wire, is in a corner of the recently acquired reservation. A standard X-ray equipment and the erection of a suitable building to house it have been authorized. The general lighting of the hospital is by connection with the radio station. During the year 141 operations under ether were performed. The examinations made in the laboratory totaled 3,829. The contagious cases treated were 126 in number.

*Chelsea, Mass.*—The major surgical operations performed at this hospital during the year numbered 512. There were 400 administrations of salvarsan. The Wassermann test was made 1,885 times. Of these 738 were for the navy yard and outlying stations. In the X-ray department 1,122 plates were made. The cafeteria system of serving food, in the main mess hall, inaugurated in November, 1917, has proved highly satisfactory. During the last 6 weeks prior to initiation of this method the average daily cost of the ration was \$0.636. During the first 6 weeks after starting the cafeteria system the daily cost of the ration was \$0.588. By January the daily cost had dropped to \$0.507. There has been a marked decrease in the amount of waste food found in garbage cans. It is to be noted, however, that coincident with the establishment of this system a new chief cook was placed in charge of the galley and much credit belongs to him for the coincident improvement of ration and reduction in its cost.

Early in the year, by direction of the Bureau of Medicine and Surgery, a survey was made of the hospital facilities of Boston and vicinity. The survey resulted in formal contracts with 15 of the leading hospitals in Boston and vicinity. Of these hospitals all but one now contain Navy patients. The hospitals are regarded as adjuncts of this institution, where the service records, health records, and all statistical data are kept, except in the case of the Marine Hospital, which keeps the record of its Navy patients. The treatment is exclusively by the staff of the hospital concerned, except in the case of the Massachusetts General Hospital, an active member of whose staff is attached to the naval hospital. Medical officers are assigned from the staff of the naval hospital to supervise all patients in civil hospitals and make the necessary entries in their health records. Patients who misbehave in one of the adjunct hospitals are returned to this institution for disciplinary action. There has been very little trouble from this source. Under ordinary circumstances patients are received at the naval hospital, and a corresponding number of patients whose cases have been studied here are distributed to the appropriate adjunct hospitals. This method avoids the detail of cases that would be unsuitable for treatment in adjunct hospitals and insures the acquisition of accurate information in regard to the history of each case and its condition on admission. All patients to be returned to duty or discharged from the service return to this institution for appropriate disposition. The new construction completed or under way will bring the capacity of the hospital to 800 beds. Many improvements and repairs have been effected in the old building.

*Charleston, S. C.*—This hospital was not placed in commission until July 31, 1917, owing to delays on the part of contractors. There are five wards for patients with a capacity of 40 beds each, except the con-

tagious ward, which is capable of handling 205 cases of various types of infection. The regular wards are suitably lighted and ventilated and are provided with toilet facilities. The operating pavilion includes in its equipment a complete X-ray outfit. The dispensary, bag room, laboratory, dentist's office, and offices for eye and ear work are in a separate building. There are quarters for the hospital corps and female nurses.

*Fort Lyon, Colo.*<sup>1</sup>—Power-house. The contract work on the installation of four 100-horsepower water-tube boilers was completed on December 15, 1917, 1,057 days over the contract time. By means of the installation of a large fan and a 35-horsepower motor the contractor was able to meet the specifications for the overload as well as the economy tests. A report was forwarded to the Bureau of Yards and Docks recommending the acceptance of the boilers, notwithstanding the fact that the boiler construction itself does not comply with the specifications. The hospital has been using the boilers for three years, and they are in excellent condition at the present time.

In the sanitary report for 1916 attention was invited to the fact that the power requirements at the hospital would soon be in excess of our present needs. This deficiency will become more apparent in the near future. It will be necessary to install two new boilers of 200 horsepower capacity. The steel smokestack has already passed the normal life allotted to such construction, and with the new boilers will be of insufficient capacity. A brick stack has been recommended. It is believed that while this construction is going on the entire boiler plant should be remodeled in order that it may be run in an economical and efficient manner. The Bureau of Yards and Docks has intimated that an officer would be detailed for temporary duty at the hospital to prepare requisitions and contracts for this work.

The present supply of artesian water barely fills the hospital wants at its present capacity. A contract has been let for the sinking of a 12-inch artesian well. It is believed that with the hospital at its full estimated capacity a second well will be necessary. Electric-driven, double-acting pumps have been recommended and contracts have been let for two of these pumps, one of which will be installed on our old number one deep well. A contract has also been let for the construction of a 400,000-gallon fresh-water storage tank. The foundations are already in, and work on the tank should commence soon.

The recommendation for the increase and improvement of our heating system, made in the last sanitary report, having been approved by the bureau, the work of reconstruction is now under way.

The pipe has been received and two new 300 G. P. M. electric-driven, centrifugal pumps are in process of installation. In order to provide for sufficient heat for the estimated increase in the hospital capacity it will be necessary to have installed by November 1, 1918, two new hot water heaters, and two 200 h. p. water-tube boilers in order to provide for the greatly increased volume of hot water necessary.

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<sup>1</sup> The Naval Tuberculosis Hospital.

It is believed that the present provision for cold storage will be ample for the future, so far as meats, butter, and eggs are concerned. It will be necessary, however, to provide a cool room for fruits and vegetables. This will be accomplished by insulating and piping the present meat-cutting room and commissary store. A two-story addition to this department is already 50 per cent completed; it will provide for a new commissary store—second story—and a new meat-issuing room, with facilities for the proper care and preservation of pork products, a large supply of which is now obtained from the farm.

The work of the commissary department during the past year has been of a satisfactory nature. Owing to the considerable amount of construction work going on during the greater part of the year, this department has been called upon to provide rations for a group of people continually growing in numbers. The monthly transfer of funds from the "Navy Supply Fund" to the "Hospital Fund" now totals more than two thousand dollars. The commissary store has again outgrown the quarters which were considered adequate a short year ago, and early in the coming fiscal year will be transferred to a more convenient location, having nearly double the floor space of the present store. The necessity for increased storage facilities is becoming more acute from day to day. This will be met by the construction of a fire-proof and vermin-proof storage house, located near the cold stores, of such dimensions as to insure ample storage room for the food supplies of 1918.

There has been a gradual increase of cost in the ration since the second quarter of 1916. It is hoped that we have about reached the maximum; that the constantly increasing amount of commissary supplies being produced on the farm will prevent a further rise in the cost of the ration.

Cost of daily ration for 2d quarter, 1916.....	\$0.524
Cost of daily ration for 3d quarter, 1916.....	.5267
Cost of daily ration for 4th quarter, 1916.....	.575
Cost of daily ration for 1st quarter, 1917.....	.578
Cost of daily ration for 2d quarter, 1917.....	.607
Cost of daily ration for 3d quarter, 1917.....	.6208
Cost of daily ration for 4th quarter, 1917.....	.667
Cost of daily ration for 1st quarter, 1918.....	.778

The bake-oven has given much trouble during the past year. A contract for a new Peterson oven has been let, and when completed will permit the overhauling of the old oven; it can be repaired and will be useful in emergency. In order to conserve our supply of ice the purchase of a modern, brine ice-cream freezer will be recommended. This machine will effect an economy in the cost of ice cream, as well as improve its quality.

As soon as it became apparent that the Navy and Marine Corps were to be permanently increased to about 180,000 men, plans were made for the permanent increase in the capacity of this hospital. It seemed probable that the incidence of tuberculosis for the service for the calendar year 1917 had been reduced to about the ratio of three per thousand. Allowing for some inevitable increase in this ratio due to war-time conditions, the ratio of 3-5 was used to make the estimate for the probable ultimate increase of patients to be provided for here, which would furnish quarters for about 700 addi-

tional men at the outside. In order that this increase might be arranged for in the most economical and efficient manner it was necessary to group the buildings in as close proximity to the present subsistence buildings as was safe in order to avoid the establishment of any additional messes or kitchens. This requires a group of buildings about the men's infirmary to provide for some 250 patients. A new dining room and an addition to the kitchen already present form a part of this group. The second group has been arranged about the present convalescent lean-tos and west wards to provide for about 500 patients. A new dining room and an addition to the kitchen of the west subsistence building to mess these patients are already well under way.

Thirty cottages of the Aladdin type were contracted for, each to accommodate 5 men. It was thought they could be made ready for occupancy in less time than would be required for the construction of wards of the "lean-to" type. The last of the material for these houses was delivered about a week ago; 20 are under construction; 13 could be made ready for occupancy in two weeks' time, if plumbing material could be obtained. Three lean-tos, each accommodating 16 patients, are in the same stage of completion, as well as the nurses' home. All ward construction has been planned to be of the "lean-to" type. This work will be finished as rapidly as possible.

During the past year 160 acres of land have been added to the farm area. About 80 acres of this land are capable of cultivation and as much of this area as it is possible to water this spring will be put under cultivation. Much development work remains to be done on the water rights purchased with this land, as it is hoped to develop enough water for use on the land already under cultivation to avoid the further use of water from the Fort Lyon canal. This requires the installation of two pumping plants, one of which will be located on the southern portion of the recent purchase and will be installed as soon as possible. The location of the second can not be determined until it is decided whether or not Congress will authorize the purchase of an additional tract of land which is needed for a further increase in the dairy herd. Unforeseen delays may necessitate the renewal of our contract with the Fort Lyon Canal Co. for one more year. Development of the home farm is being carried on as rapidly as water can be provided for its irrigation. There remain about 30 acres west of the garden to be broken up; it is believed this will be accomplished during the coming spring. It is believed that the water supply in the well at the main gate will be approximately doubled by the installation of four gathering wells, their water being conducted to the main well by siphonic action. This plant is in process of installation at the present time.

The sinking of a new well at the northeast corner of the garden will ultimately provide for sufficient water to irrigate the tract of land occupied by the cemetery. It is planned to start some trees and grass on this plat. There are some 10 or 15 acres here that will also be available for farm uses when irrigated.

The concrete sump at the pump house, main gate, had to be abandoned for the uses intended, as it could not be repaired. A steel head has been placed on one of the old boilers and this has been installed



in the sump. The connections have been so arranged as to warrant the belief that it will prove to be more useful than the former sump.

The rainfall for this section during the past year was 11.18 inches. Notwithstanding the fact that it was distributed during the growing season, the year was the second of two unusually dry seasons. This resulted in a greatly diminished water supply from the Fort Lyon canal, and required the almost constant operation of our pumping plant.

The dairy herd is developing very favorably. There are at present 68 adult animals, and 50-odd calves of all ages. Three cows have been lost by being thrown into the hay rick and dying during the night. One has been butchered as not being of sufficient value as a dairy producer to pay for feeding, and was turned in to the commissary mess. The herd is now producing about 160 gallons of milk daily; it is expected that this will be increased to 185 gallons in the near future, and that this average will continue during the remainder of the year. A relatively small amount of milk will have to be purchased from time to time until the herd is enlarged in numbers through natural increase. It has been planned to start this herd free of the usual diseases, common among dairy cows, and, by breeding our own increase, keep it so. Two finely bred bulls have been selected for the herd, and it is anticipated that the herd will develop as planned. It is also planned to raise the bull calves and fatten them as baby beef for the commissary mess. With a small increase in the acreage of our grazing land this scheme can be carried out and will result greatly to the advantage of this mess. It will not be possible to keep all of the heifer calves; a few will be selected for the herd, a very few will be used for veal, and the remainder will have to be disposed of in some other manner; they will be too valuable for veal, but not good enough for our herd.

The herd of hogs has done nicely during the past year. It is proposed to slaughter about 150 animals and turn them into the commissary mess during the year. By the end of 1918 it is believed that all will be pure bred.

In order to safeguard the control by the hospital of an abundant supply of hard water for flushing purposes, fire protection, and irrigation, there was obtained an allotment for funds for the construction of a dam across the lowlands along the east boundary of the reservation. This water normally flowed to the east and away from the building area. The land, however, was so flat that it was only necessary to raise its level at the east boundary 1 foot to cause it to flow west. A dirt dam has been constructed with a heavy coating of stone along its sides to control the action of the muskrats, and with an average height of 3 feet above the old water level. This water now flows east into the sump near the power house, with its overflow into a ditch controlled by a head gate, thence into the channel of one of the hospital sewers and on into the river. The project is nearly completed, and at present there is available for all times a large body of hard water for such uses as may be necessary. Recently a representative from the National Underwriters' Association visited the hospital for the purpose of making a thorough inspection of our fire protection system. Up to the present time his report has not been received at the hospital. He naturally found

many defects and suggested remedies which can be easily applied. Allotment of funds has already been made for this purpose, which will doubtless be ample in amount. The work will be finished as rapidly as possible.

As regards the résumé of classes of patients admitted here during the year, the following items compared with those of 1916 are of interest:

Navy and Marine Corps officers, active list, original admissions (both for 1916 and 1917)-----	18
Enlisted men, Navy and Marine Corps, original admissions (72 in excess of 1916)-----	239
Enlisted men, supernumerary (previous admission here) (28 less than for 1916)-----	39
Ex-enlisted men and retired officers, supernumerary, original (no previous entry) (20 in excess of 1916)-----	28

Under nontubercular enlisted men, Navy and Marine Corps, there were 50 admissions in excess of 1916. The total of all cases treated during 1917 was 120 in excess of 1916.

Notwithstanding the bureau's circular letter to the various hospitals and stations directing that certain of these cases should not be sent to this hospital, many cases are still transferred here that should be discharged and sent to their homes or places of enlistment. With the Navy personnel made up of less than 100,000 men, the comparatively small number that would remain here was of little moment. At present the Army is sending all these cases to their home towns, with a letter to the chairman of the local chapter of the Red Cross, who looks after their interests in case they have no home to go to. As will be noted the great majority leave the hospital after about a month's residence, during which time they have acquired few of the benefits the hospital has to offer them, and their cost of transportation is so much money wasted. Thirty-five per cent of the January, 1918, admissions belong to this class of cases. It is urgently recommended that suitable steps be taken to reduce this practice to a minimum.

Of the 271 original admissions for tuberculosis, active and supernumerary, 18 cases, or 6.6 per cent, were complicated by a concurrent syphilitic infection. The clinical history of all these cases indicates that this disease exercised a determining influence on the outset of the tuberculosis. The break in resistance following active syphilis is most pronounced, and is almost invariably accompanied by the same blood picture found in neglected advanced stage cases of tuberculosis. This observation is common among recent authors on tuberculosis; its bearing on the probable cause of the disease in service cases, as being in line of duty, is apparent. The writer is of the opinion that any service case, giving a clear history of active syphilis, shortly preceding the onset of symptoms of tuberculosis, should have the latter disease recorded as "not in line of duty," and particularly so in case the syphilis is associated with a history of alcoholism.

Of the 271 original admissions for tuberculosis, 105, or 38.5 per cent, are recorded as incipient, or first-stage cases. As noted in previous sanitary reports, this record is obtained as the result of a most liberal interpretation of the physical signs present and the

recorded clinical histories. As a matter of fact, but few truly incipient or early cases of tuberculosis are admitted here.

Forty-four, or 15.3 per cent, of these admissions were of second-stage cases, and 122, or 42.5 per cent, were of third-stage cases in a more or less advanced-stage development. These percentages, if known to the medical officers of the service, should serve as an incentive to more accurate observation in the study of patients as they present themselves, complaining of symptoms pointing to affections of the respiratory passages. This is of the utmost importance when one considers that this disease still outranks all other disabilities recorded for the service, as having the greatest number of sick days to its credit, and, notwithstanding that it is of vital importance to the patient that he should be placed under favorable conditions of treatment at the earliest possible moment, it is of equal importance to the service, as an essential element of preventive medicine, that tuberculosis patients should be removed from ships and general hospitals, if possible, before they become a source of danger to their mess-mates.

During the past year the routine treatment employed has been a continuation of the methods reported in the annual sanitary reports since 1915. Reference to the statistical table appended and marked "A" shows in a comparative manner the results obtained. During a portion of the past year we took up again the use of tuberculin, using a method of administration advocated by Dr. E. Bonime, of New York City. For a time we undertook to make it a routine measure. The essential feature of the method consists in the use of tuberculin in sufficiently high dilutions, in doses so minute as to cause little or no reaction. The method is a simple one, but the technique necessary to insure success is rather complicated and consumes much time in its acquirement. In carrying on the treatment it is not possible to delegate to untrained assistants any of the steps in its administration. For these reasons it is not adapted for a routine measure in a large institution of this sort; however, much good has been accomplished with this method where the work was done by the medical officer in person.

There are at present two members of the nurse corps (female) stationed at the hospital. They are occupying a set of officers' quarters. They were transferred from Fort Bayard, where both of them had been under treatment for tuberculosis for a considerable period. The disease is not active at present in either case and both are doing duty. Miss Knight is in full charge of the laboratory and is doing excellent work. Miss Walsh has been detailed for light duty at the officers' infirmary, where her work is much appreciated by both duty men and patient officers. It was hoped to have the nurses' home ready for occupancy by March 15, but its final completion will be delayed more than a month through nondelivery of plumbing material.

A report has already been forwarded to the bureau calling attention to the desirability of providing separate quarters for the care and treatment of members of this corps, who may from time to time be transferred here for this purpose. There is no reason why they should not be cared for here, but there are many reasons why a separate building should be provided for this class of patients.

## "A."

*Statistical summary of tuberculosis patients and final disposition of these cases for the year 1917.*

	Classification.			
	In- ipient.	Moder- ately advanced.	Far ad- vanced.	Totals by di- visions.
Remaining from last year.....	59	80	90	229
Original admissions, etc. <sup>1</sup> .....	105	44	122	271
Readmissions.....	4	1	11	16
Discharged during the year.....	91	72	108	271
Continued to 1918.....	77	53	115	245

	Num- ber.	Days.	Num- ber.	Days.	Num- ber.	Days.	Num- ber.	Days.
Dead.....	5	1,192	2	514	43	12,334	50	14,040
Unimproved.....	20	1,510	18	9,197	30	7,954	68	18,681
Improved.....	23	5,156	25	10,018	26	7,665	74	22,839
Quiescent.....	18	7,702	11	6,198	2	444	31	14,344
Apparently arrested.....	7	1,606	5	2,067	4	1,360	16	5,033
Arrested.....	10	5,062	4	3,430	1	454	15	8,948
Apparently cured.....			1	1,114			1	1,114
Diagnosis changed to nontubercular disease.....	8	2,725	6	2,475	2	909	18	6,109
Continued to 1918.....	77	23,186	53	20,447	115	34,421	245	78,054
Total.....	168	48,139	125	55,480	223	65,541	516	169,169

Total sick days of cases continued to 1918..... 78,054  
Total sick days of cases discharged during 1917..... 91,106

<sup>1</sup> Original admissions, officers and enlisted men, ex-enlisted men, and retired officers. Of the original admissions 243 were enlisted men and officers of the Navy and Marine Corps; 28 were ex-enlisted men or retired officers, the latter never having appeared on any return from this hospital.

## "B."

*Review of treatment and results for the years from 1911 to 1917, inclusive.*

Year.	Admis- sions.	Dis- charges.	Con- tinued to following year.	Average number sick days for each discharge.	Average number sick days for each case con- tinued.	Deaths.	Average number sick days per death.	Total number sick days for all cases, both discharged and continued to the following year.
1911.....	215	212	146	244.6	234.7	33	246.0	93,674
1912.....	182	190	142	252.6	310.8	26	194.0	92,122
1913.....	235	159	208	312.0	235.7	22	236.8	103,186
1914.....	244	221	231	264.1	305.5	43	191.1	128,946
1915.....	200	207	224	370.3	325.5	36	259.4	149,313
1916.....	224	219	229	376.2	359.0	44	238.0	164,613
1917.....	287	271	235	325.1	346.9	50	280.8	169,169

## "D."

*Weather report—Synopsis of report for calendar year 1917.*

	Average maximum.	Average minimum.	Average variation.	Average mean.
January.....	44.6	12.0	32.0	27.7
February.....	50.4	19.0	31.0	34.6
March.....	57.0	22.0	35.0	40.0
April.....	69.0	36.0	33.0	48.5
May.....	70.0	45.0	25.0	59.0
June.....	80.0	55.0	25.0	72.0
July.....	96.5	63.5	33.0	79.4
August.....	92.8	57.0	35.8	71.7
September.....	83.5	51.2	32.3	68.0
October.....	73.0	35.2	37.8	54.3
November.....	83.8	28.8	55.0	46.3
December.....	50.9	14.3	36.6	33.0
Average for year.....	70.0	37.4	32.6	52.9

Navy standard maximum and minimum Fahrenheit thermometer used.

Maximum and minimum temperature recorded daily.

Total rainfall for the year, 11.18 inches (1.01 inches less than normal).

*Great Lakes, III.*—The original hospital facilities were adequate for 120 patients, but not complete for contagious cases. This fact was recognized by the bureau and within a month of the declaration of war work to remedy this defect had been begun, contemplating the erection of 3 contagious buildings with a capacity of 25 beds each. The construction of 6 additional contagious units with a capacity of 40 beds each, a subsistence building for this group and the barracks for the hospital corps was begun July 6, about the time when the first 3 wards were completed.

The hospital plan was further expanded by the construction of 20 additional wards, 2 subsistence buildings, nurses' quarters, civilian barracks, hospital corps barracks, 2 garages, power house, laundry, storehouse, tool shops, incinerator building, and brig. The wards were designed to hold 50 patients each, giving an approximate capacity of 1,000 beds. None of these buildings erected this year have a forced system of ventilation, but by means of ceiling ventilators and the proper adjustment of the patients which the wards will hold the ventilation is adequate. The wards designed for 50 beds are really filled when they have 40 patients, thereby reducing the number of beds to a normal capacity of 800, and this should not be increased to the designed number of 1,000 for any considerable period of time, as the wards would then be overcrowded. Taking these wards together they have a capacity of 1,215 patients, but could readily expand, if all wards were filled, to approximately 1,400. Of course, this is not possible owing to the fact that certainly of the contagious wards would not be filled, and still space must be had for the various contagious diseases. Provision was made by the bureau to meet this contingency by having 3 of the contagious wards divided by partitions into 3 small wards each, and this has been of very great value in handling small groups of contagious cases, thereby putting fewer beds out of commission. The construction work on the emergency hospital was begun on August 13, and the

first of the buildings was occupied on November 6, 1917. This group of buildings is practically completed, only a small amount of work, such as pipe covering, etc., remaining to be done. The buildings have proved extremely satisfactory, the contagious wards being all that could be asked for in the way of contagious buildings, and these buildings may be considered permanent, inasmuch as the character of construction is as good as could be desired under any circumstances. The so-called emergency hospital construction work was not of so good a character. It was not designed to be so, but, if adequately cared for, should be perfectly good for 20 years or longer. It has been necessary, of course, to go over the entire equipment which was here at the beginning of the year, increase it and replace it to meet the greatly increased number of patients that had to be accommodated, increasing the capacity of the galley, replacing the old dish-washing machine, installing a much larger and better ice machine. The carbonic-acid-gas machine which was in this institution originally was subject to constant breakdown, had no ice-making capacity at all, and was used as a refrigerating machine. The hospital had to depend for its ice on the training station, and the problem of transportation had to be considered, so that the installation of the new machine has been much more satisfactory in every respect.

During the summer months, from the spring until the autumn before the new buildings were available, the patients were treated largely in tents where the cases were suitable. These tents were procured, a few by requisition, but in the main from the training station. Practically the entire hospital ground was devoted to these, making a very satisfactory method of treating the patients. There were, of course, some difficulties at times in procuring materials, but, considering the emergency, the care of the patients has not suffered seriously in consequence of the housing facilities.

Sewage has been disposed of by sewers, and a new disposal plant has been erected by public works in addition to the one originally installed. The new plant will probably be adequate to handle the sewage of the new station when once it is completed. It is now in partial operation. Both of these disposal plants are situated on or near the small hill across the ravine from the medical officers' quarters. At times when the wind blows from the east and southeast they are most objectionable. It is expected that when the new plant is in full operation these objectionable features will be done away with. The emergency hospital buildings are all connected with the new sewer which runs through the hospital grounds. This sewer is 2 feet in diameter, and seems to be handling the sewage in the proper manner.

The garbage from the hospital and food refuse is being sold, and so far the contractor has cared for the waste in a satisfactory manner. Certain refuse from the contagious wards and dressings from the operating room have to be burned. This has been done in a small incinerator which was removed from the main hospital early in the year and erected for the purpose on the edge of the ravine. The disposal of the refuse has not been offensive in any way, and when the new incinerator, which is now under construction, is completed this feature will be adequately cared for in every way.

A fire-alarm system is to be installed in the hospital group. This is very important because of the inflammable type of the temporary construction which has been put up. The main hospital is of fire proof construction, well supplied with hydrants in the building and with a sufficient amount of hose and other appliances to handle anything that could possibly arise in this building. Fire hydrants have been placed around the new units, no hydrant being over 200 feet distant from another. There have been purchased 1,500 feet of standard fire hose, and the delivery of an additional 1,000 feet is being awaited. An automobile chemical fire engine was provided, which carried in addition to the regular equipment 500 feet of fire hose. The balance of the fire hose is placed in boxes constructed for the purpose at various points about the new hospital buildings in the vicinity of the hydrants.

All of the new buildings are heated by steam, the entire contagious group receiving its supply from the central power house on the station, and the emergency hospital, nurses quarters, and garages being heated from the power house erected with the emergency hospital. The temperature has fallen here as low as 10 below zero, and at no time was there difficulty in keeping the wards sufficiently warm. The steam pipes in the nurses' quarters are connected not only with the steam supply from the central power plant on the training station but also with the new power house on the hospital grounds, and should it be necessary a reasonable amount of steam could be had from either place, which would give at least some heat to the buildings and enough to prevent freezing of pipes, etc.

The bathing and toilet facilities in the new emergency hospital are adequate for any call that may be made upon them. In fact, the new hospital plant is very satisfactory in every respect.

The operating room is in the main hospital, and is fully adequate to the need. The equipment on hand now and that which has been authorized and will be here shortly will be all that is required for any surgical work that may present itself.

The three motor ambulances provided have answered the purposes of transportation very satisfactorily to date.

Two 2-ton automobile trucks were provided, and it would have been impossible to carry on the work without them. They have been in use constantly since they were received. A third truck has been authorized and is greatly needed.

#### *Summary of statistics.*

Number of cases carried over from 1916.....	98
Admissions for 1917.....	817
Readmissions for 1917.....	5, 448
Patients remaining Dec. 31, 1917.....	<sup>1</sup> 927
Invalided from the service (1917).....	252
Died (1917).....	<sup>1</sup> 110
Ran (1917).....	18
Number of operations.....	368
Number in hospital corps.....	208
Number of nurses.....	58
Civil employees.....	46
Medical officers.....	28
Sick days for year (1917).....	187, 807
Daily average of patients.....	<sup>2</sup> 377

<sup>1</sup> And 1 supernumerary.

<sup>2</sup> Plus.

*Spinal meningitis and pneumonia cases for the year 1917.*

Month.	Pneumonia.		Spinal meningitis.	
	Admitted.	Died.	Admitted.	Died.
January.....	5	.....	3	2
February.....	10	2	11	5
March.....	10	2	15	8
April.....	7	1	22	7
May.....	38	8	37	8
June.....	21	2	11	3
July to October 1.....	6	1	17	1
October.....	10	.....	.....	.....
November.....	28	3	5	1
December.....	35	4	23	7
Total.....	170	18	124	42

<sup>1</sup> July to Nov.

## Pneumonia:

Total admitted..... 170

Total died..... 18

## Spinal meningitis:

Total admitted..... 124

Total died..... 42

*League Island, Philadelphia, Pa.*—Work was commenced in May and the buildings were ready for occupancy and the receipt of patients on October 1, when the hospital was formally opened.

The hospital consists of 16 one-story pavilions, facing as a whole to the south, the wards and living quarters, with the exception of the sick officers' quarters and the nurses' quarters, running on north and south lines. The remaining buildings stand on east and west lines. The front of the block is occupied by the administration building in the center and the nurses' and sick officers' quarters on either side. To the rear of these are five wards, and centrally located, the operating pavilion. In the rear of the wards and connected with them by a covered walk and solarium, are the mess hall and the kitchen. The store house, shops, garage, laundry, mortuary, and the barracks are located to the rear of the above. Barracks No. 1, at the southwest corner, is assigned to the hospital corps and barracks No. 2, at the southeast corner of the block, is assigned to the other enlisted personnel. None of the civilian employees are quartered on the reservation.

The buildings are of light, pine construction, supported on concrete pillars. The living quarters, wards, sick officers' quarters, the two barracks, mess hall, and kitchen are ceiled and sheathed. The floors in the kitchen, mess hall, garage, toilets, and operating pavilion are concrete. All other floors are of matched pine, laid double. Water-proof paper is used on the roofs. All the living quarters have a ridge ventilator extending the entire length of the building, openings in the ceiling allowing the passage of air currents from the living space to the loft. Artificial light is supplied from the yard plant, lighting current being 110 volts, A. C., in addition to which direct current of 220 volts, 3 phase, 60 cycle is furnished for the motors, special diet ranges, and other power purposes.

Drinking water is supplied from the city mains. In addition, Delaware River water is furnished for the sewage disposal and for the fire mains. There is no connection between the two systems. The sewers discharge into the yard mains, the fall being very slight and



it is feared that at high tide it will back-up, but so far no difficulty has been experienced. The plumbing is of good quality and design.

The buildings are heated by steam from the plant common to the seamen's barracks and the hospital, through overhead high pressure (60 to 100 pounds) mains and delivered to the various units and there reduced to 4 to 10 pounds before entering the radiators. No return line is provided, the radiators exhausting through traps into the sewers or sump wells. The various sterilizers are connected direct with the high-pressure lines, as are also the water heaters in the loft of each unit. This arrangement permits the supplying of steam to these appliances without having steam on the heating lines of the buildings. The water heaters are furnished with thermo-regulators, but in case the above allows undue pressure in the heaters, safety blow-offs are provided. It was discovered that the latter were not run through the roofs, but this has since been remedied. The heating plant is, as a whole functioning satisfactorily. Considerable difficulty has been and is still experienced in keeping radiators free from water, owing to the failure of the traps to carry it off. This is attributed to dirt, scale, etc., in the pipes working down into the traps, requiring the services of the hospital plumber to open and free them. In several instances, the traps were insufficient in size to relieve the pipes of the water of condensation, but this difficulty has been remedied by the installation of larger traps.

The rooms of the administration building are assigned as follows: Front—west to east—commanding officer's office, bacteriological laboratory (temporary extension), officer of the day's office, pharmacist's office and record room. Rear—west to east—bacteriological laboratory, executive officer's office, dispensary, nose and throat room; this latter room is also used as a board room.

The rooms in the building for sick officers' quarters have been outfitted for patients, with one room each for the officer of the day and his relief. The living room is used as a rest room and library for the medical staff.

Quarters are provided for 11 nurses and a chief nurse, with but one in a room. In case of necessity 20 nurses could be quartered here, but this would result in some discomfort through overcrowding. The rooms, while small, are comfortably furnished.

The operating pavilion is connected with the surgical ward "D" by a covered way. The room designated as the laboratory on the plans is used for a developing room and for the storage of radiographic plates. The room opposite contains the X-ray outfit. The etherizing room does additional duty as the eye room. The two operating rooms are admirably suited to the work, being well lighted and heated. The surgeons' and the nurses' preparation rooms are provided with wash-up basins, having gooseneck faucets with knee levers. The toilet adjoining the surgeons' wash room should be replaced by a shower bath, which is greatly needed especially during the summer months. The sterilizing outfit is complete and the only criticism is that the dressing sterilizer could, with advantage, be larger. The cement floor in this building is rough finish and will wear rapidly. In future contracts it is suggested that smooth, hard finish be specified.

The five wards are in use as follows: "A" (two sections)—For contagious cases; "B"—Medical cases; "C"—Medical or surgical, as required; "D"—Regular surgical ward; "E"—Venereal ward. The wards are essentially similar, having two quiet rooms at the south end and a diet kitchen, nurse's room, and a dressing room at the north end. Solaria were added to the wards after the buildings were completed.

In this connection it is desired to invite attention to the advantage that would result from having a medical officer of experience in hospital construction assigned as technical inspector at an early stage in the building of hospitals. There are many features of this class of work which are unfamiliar to the average civil engineer and his assistants, and which are not provided for in specifications. But little attention was given here during construction to the placing of drains for cement floors or to the proper pitching of floors. This is particularly true of the floor in the kitchen, where deep cuts in the floor are required to permit drainage water to reach the drains. The door locks are generally defective, due to broken bolt springs and loss of knobs. They are being replaced by the hospital force.

This hospital was among the first organized to utilize the services of a personnel mobilized under the Red Cross, in this case naval station unit No. 2, recruited in Philadelphia. Owing to the relative shortage of experienced naval medical officers and naval nurses but a few of them could be detailed to this duty, the commanding and executive officers, three pharmacists, a chief nurse, and surgical nurse being the only representatives of the regular service in the higher grades ordered to this hospital. The hospital corpsmen are enlisted in the regular service, but with few exceptions are entirely inexperienced, both in their technical duties and in Navy methods and routine. Other enlisted personnel, such as yeomen, cooks, artisans, mess attendants, etc., are detailed largely from the Coast Defense Reserve, a few ratings in the regular service having been detailed from the receiving ship by the commandant to fill ratings at that time unobtainable from the Naval Reserve. The medical, surgical, and nursing staff is composed of those eminent in their specialties and at the same time well grounded in general practice. It has been thought advisable to retain the unit organization, having the director take over to a certain extent the duties of the executive as far as relate to the care of patients. He coordinates the work of the staff and keeps the commanding officer informed as to the condition of patients and makes recommendation as to discharge and survey. It is not intended that this arrangement in any way relieve the proper officers from responsibility, but it does relieve them from a multitude of minor affairs which are taken up between the director of the staff and its members. Through the director of the unit the commanding officer is kept constantly informed of the condition of patients, and he also receives any recommendations that may be made which will tend to the comfort and recovery of the sick. This gives the commanding and executive officers more freedom to attend to the military side of the hospital work and the enforcement of discipline, the procurement of supplies, and the maintenance of buildings and grounds, and lastly, the keeping of records, which, with a

personnel unfamiliar with this kind of work, requires constant observation and instruction.

Through the director of the unit, special orders and instructions are issued to the staff regarding the manner of performing their duties. The director of the unit takes charge of sick officers and the surgical service, having as an assistant one of the junior medical officers, who keeps clinical histories and attends to the dressings. The operating work has been divided so that all those desiring to operate have the opportunity. The executive officer has availed himself of this opportunity to perform operations. Forty-five operations, which may be classed as major, have been successfully performed without any fatalities except one case of mastoiditis, in which septicemia had already developed. The operating pavilion is in charge of a member of the naval nurse corps and assistance is rendered by hospital corpsmen, who, as soon as fairly trained, are relieved by understudies as the latter become proficient. In this way, while preserving a nucleus of trained corpsmen in the operating room, it is endeavored to have a constant stream of hospital corpsmen passing through this training. The anaesthetizing, usually ether, is under the charge of a specialist in this line, who gives practical instruction to the hospital corpsmen detailed for that purpose.

The medical service is under the internist of the unit with a junior officer as an assistant. In this, as in all other services, a complete history of each case is taken and continued, the complete case history being filed in the record office. A thorough physical examination is made in each case and, if indicated, the patient is referred to the various specialists for further examination. Three cases suggestive of cerebro-spinal fever have occurred, each giving Kernig's sign, but spinal puncture and cultures of the spinal fluid and of fluid from the nasopharynx were negative. All these cases occurred without any further signs developing. Seventeen cases of pneumonia occurred with three deaths and there was also one death from sero-fibrinous pleurisy. The prevailing organism has been of Types I and IV, pneumococcus.

The medical officers in this laboratory deserve great credit for the efficient manner in which they have organized and trained the personnel of the laboratory, so that at the present time, even with the limited space available, they are in position to culture 500 cases a week in addition to their routine work. The advantage of having a well equipped laboratory in the yard is shown in the recent appearance of a case of diphtheria at the seamen's barracks. This laboratory at once made cultures of 29 contacts, which, when found to be negative, were released from quarantine and no further cases developed. Through the ingenuity of one of the officers attached to the laboratory, electrically heated boxes have been provided to keep culture media at blood heat, while smears are being made for meningococcus. These boxes can be attached to the electric lighting circuit in any place so that, if necessary, a force from the laboratory could be sent to distant stations and cultures taken and maintained at uniform temperature until placed in the incubator.

*Mare Island, Cal.*—While as a precautionary measure contracts were made with hospitals in San Francisco to care for patients in

excess of the accommodations at Mare Island, the purchase of tents made it unnecessary to send any patients away from the hospital reservation. The total number of laboratory examinations was 17,741. The major operations performed during the year numbered 248, the minor operations, 259. In the nose and throat department 469 tonsillectomies were done. The total admissions amounted to 6,686, of which 1,388 were for measles, 570 for German measles, and 21 for cerebro-spinal meningitis. The emergency hospital construction authorized August 21 has been completed. It consists of 4 wards, 3 subsistence buildings, each comprising a kitchen and 2 mess halls, a hospital corps barracks accommodating 100, nurses' quarters consisting of 26 rooms, an incinerator and extensions to laundry and power plant.

*New Orleans, La.*—This hospital was placed in active operation on November 12, 1917, with the transfer of 20 patients from the station dispensary. At that time only two of the 20 buildings comprising the hospital plant were incomplete and these, the mortuary and brig, had only been lately authorized.

It has been found to the benefit of good administration to rearrange the offices in the administration building. The larger room, which was assigned on the plans for an examining room, has been utilized for general office work in connection with the executive officer's office and for the switchboard operator, and a smaller room has been substituted for it. The construction of a separate laboratory building left one room in the administration building unused, and this is being employed as an office for the executive officer, and the room plotted for that officer has been fitted up as a waiting room.

The operating pavilion is satisfactory in every way, except, perhaps, in the flooring. This is of concrete construction, and is too porous to be properly adapted to the purpose, and it is not laid with efficient drainage fall in the main operating room. These defects are, however, of such minor importance as to be lost in the general excellence of the pavilion as a whole. The equipment is generous in quantity and in quality and meets the requirements for any surgical procedure. The X-ray plant in equipment and space leaves little to be desired. The generator is not yet adjusted to the highest degree of attainment, but it is expected that the contractors will finally make this possible.

The laboratory will represent, when its entire equipment is delivered and installed, a modern and model workshop for general research work and routine hospital investigation. Its design and orientation practically reaches ideal conditions.

The water supply is adequate and of good quality, being obtained from the mains of the city plant. The food supply and its preparation is thus far satisfactory, and considering the high market cost of all provisions is not unduly expensive per capita. The per diem ration at the end of the year was averaging 67 cents per capita. The galley equipment and personnel give evidence of being equal to the requirements of the full capacity of the hospital. It is too early as yet to make comment on the efficiency of the members of the nurse and hospital corps. Indications are, however, that the nursing staff attached to this hospital represents a body of men and women above the average in intelligence, and gives promise, from the interest of

its members in the work assigned them, of giving service of a high order.

It is recommended that construction material for four complete ward pavilions be assembled to meet a sudden demand for increased capacity, this material to be held in reserve for the purpose.

*New York, N. Y.*—This hospital has been the scene of unusual activity along many lines. Besides extensive overhauling and repair of existing buildings new construction has been begun and is nearing completion to accommodate 272 additional patients and further buildings to house 524 patients are contracted for or begun. A new power house is being built and a complete plant for handling and storing coal is to be provided.

The following summary gives but an inadequate idea of the professional work accomplished during the calendar year 1917:

Number of patients admitted and treated.....	5,942
Number invalided from the service.....	410
Number died.....	51
Number of surgical operations requiring anesthesia.....	400
Number of X-ray pictures.....	2,298
Number of recorded laboratory examinations.....	11,562

Many of the patients have been assigned to various civilian institutions for treatment under the supervision, both medical and military, of the commanding officer of this hospital, and their wide separation throughout Greater New York has added markedly to the duties devolving upon the hospital staff.

*Newport, R. I.*—The following comparison between the numerical force of the staff and of patients in the hospital on the corresponding days of 1916 and 1917 well illustrates the increased facilities which have developed at this hospital to meet the needs of the greatly increased personnel:

	Dec. 31, 1916.	Dec. 31, 1917.
Officers on duty:		
Medical.....	4	13
Pharmaceutical.....	1	4
Nurses on duty.....	13	48
Hospital corpsmen.....	28	196
Patients in hospital.....	62	423

During the year 14 new buildings have been constructed to accommodate 390 additional patients, in contagious and pavilion wards. The garage has quarters for 20 civilian employees. A special pavilion can accommodate 21 female nurses or sick officers and four servants. A special building for the hospital corps will accommodate about 150 men. Buildings have also been put up for field laboratories and for the commissary department. These new buildings are designated "temporary structures," but they are of excellent construction, and will be adapted to the purposes contemplated. The garage, however, is of brick and permanent in type. In August the temporary use of three ward buildings and various minor facilities and the services of some members of the hospital staff were offered to the city of Newport to assist the civil authorities in meeting the acute emergencies due to the widespread epidemic of diph-

theria. This prompt aid was much appreciated by the health authorities of Newport and greatly facilitated the rapid control of the epidemic. Care was taken not to assume the attitude of "taking charge," and emphasis was placed on the fact that the hospital was simply offering assistance.

There has at times been some crowding of patients in the wards. This was greatest during the period immediately following the entrance of the United States in the war, when recruits were arriving in large numbers at the training station in advance of the completion of necessary housing facilities. The effect of this crowding at the training station was mainly apparent in the increased number of cases of the more common contagious diseases transferred to the hospital.

*Norfolk, Va.*—The average complement of this hospital during the first quarter of the calendar year 1917 was 212. When war was declared steps were immediately taken to enlarge the patient capacity of the establishment. By September 15 eight new pavilion wards of 40 beds each, 4 hospital corps barracks of 30 beds each, 2 subsistence buildings, and 6 semipermanent bungalows of 24 beds each had been completed. For the hospital camp 20 bungalows, 1 subsistence building and a bag room were also in operation. In May, 1918, the number of patients had increased to 1,300, of whom 500 were in the camp suffering from mumps, measles, scarlet fever, tonsillitis, etc. Steps were then taken to install heat, water, and sewerage facilities in the camp. At the end of the year the total number of patients was 1,100, with 600 contagious cases in the camp, which was now on a permanent basis and in good running order.

Owing to its geographical position in the naval district to which it belongs and to its accessibility to divisions of the fleet operating on the Atlantic coast, this hospital has received a large proportion of the sick from our cruising ships and has borne a heavy burden of responsibility, but all its obligations have been most worthily discharged and the commanding officer and staff are entitled to the highest praise for the skillful treatment they bestowed on the sick while engaged with problems of expansion, building construction, etc.

*Paris Island, S. C.*—One new building has been completed during the year and 5 others are now under way. When the work is completed this hospital should fulfill the requirements of the station unless a further increase of its personnel should be made. About 70 patients are under treatment at the hospital. Owing to the great congestion on the reservation, due to extensive building operations, the proper handling of patients is attended with some difficulty. It has been necessary occasionally to treat in outlying sick bays patients who would have been better off in the hospital proper.

*Pearl Harbor, T. H.*—The hospital has operated successfully since the receipt of its first patient, July 23, 1917. There remain to be provided quarters for sick officers and for contagious cases and an incinerator for garbage.

*Pensacola, Fla.*—The hospital was placed in commission on December 19, 1917, though work was still required and going on in connection with the isolation ward, quarters for members of the hospital corps, the mortuary building, the gatehouse, incinerators, roadways, etc. The hospital consists of 6 wards, each in a separate build-

ing, connected on their southern ends by a concrete road. Each ward accommodates comfortably 38 beds and is provided with dressing rooms, nurses' room, diet kitchen, lavatories, toilets, and from 2 to 8 quiet rooms. In addition to the wards there are quarters for nurses, for hospital corpsmen, for sick officers, for civilian employees. There is an administration building, a boiler house, mess halls, recreation room, post exchange, laundry, paint shop, carpenter shop, and garage. The buildings have excellent plumbing and sewerage, steam heat, electric light, and telephone connections. The commissary department has been operated in a most satisfactory manner. The work of the laundry has been of a high grade; the hospital is supplied with a motor ambulance and a motor truck.

*Portsmouth, N. H.*—The rapid increase of the Navy in the spring of 1917 was reflected in the number of patients in this hospital, which increased from 47 on April 6 to 246 on May 28. The preponderance of the admissions in May, June, and July were acute febrile conditions, particularly communicable diseases. With the arrival of the first cases of measles and other infectious diseases a tent camp was established. Much inconvenience was caused at first from the fact that there was no latrine available for the camp for use of convalescents. Rough closed stools were made for each tent until a proper latrine with showers, baths, urinals, etc., could be erected. The present tent capacity of this hospital is 200. The hospital building proper is reserved for cases not of a strictly infectious nature. In September, 1917, work was begun on 2 sets of quarters for hospital corpsmen, a building for female nurses, 2 additional wards, a subsistence building, and a garage. In November, 1917, a new laboratory building was begun. These improvements increased the bed capacity of the hospital by 170, making, with the tentage, a grand total of 500. The total number of sick (active list) treated during the year was 1,975, of whom 1,542 were returned to duty, 88 continued to next year, 18 died, and the rest were invalided or transferred or discharged for change of diagnosis. The total number of infectious cases for the year was 576. There were 19 deaths and 7 transfers to the insane asylum. The following are the principal items of work done during the year: Closing in of solarium on third floor; installation of supplementary heating system in the basement; erection and equipment of 10 new buildings. The psychiatrist detailed for duty at the hospital has rendered important service.

*Puget Sound, Wash.*—A special effort has been made to give the medical officers recently appointed and on duty at the hospital, every opportunity for acquiring familiarity with the duties peculiar to the naval service. The medical, surgical, venereal, operating, X-ray, and laboratory services have been assigned in rotation. Instruction has been given in hospital corps drill and the simpler military formations. All have shown interest in the work. The detail of 15 female nurses to the hospital since June, 1917, has greatly added to the efficiency of the personnel. There being no quarters available for them in the yard, the nearest available rooms that could be rented were within a mile of the hospital and located over a moving picture and billard hall. These nurses have performed excellent service and the medical officer in command of the hospital, in recognition of their usefulness, has urgently recommended that adequate quarters,

ever, though of a temporary character, is considered to be their *raison d'être*.

Since June, 1917, classes for intensive training and instruction of members of the hospital corps assigned to this hospital have been organized. The instruction has been both practical and theoretical, and the degree of interest shown and the marks attained have been a factor in determining the fitness of hospital corpsmen for advancement in rating.

Installation of an ice and cold-storage plant in the main building has eliminated the necessity of hauling ice from Bremerman and has given the greatest satisfaction. A small electric washing machine installed in the basement and used to wash gauze, muslin, and bandage material already used has been very useful. The salvage system for all dressings and bandage material was instituted on August 1, 1917, and has resulted in the reuse of 50 per cent of the material already used. A hospital corpsman especially detailed for the duty collects all soiled dressings and materials which have been used and discarded in the wards, dressing room and operating room. The material is sterilized, then carefully picked over and what is found to be of any further use is washed, dried, and subjected to further sterilization on three successive days. It is then dried, sorted, and returned to the dressing rooms for further use.

The increase of patients due to the large increase of personnel in the yard made necessary the use of the main basement for ward space and in addition 25 hospital tents had to be set up in the grounds from April to September, 1917, when 5 new pavilion wards were completed. There were, also, completed at this time 3 dormitories for the hospital corps, 1 dormitory for civilian employees, a mess hall, and a kitchen. These enlarged facilities have made available the third floor of the main building for the reception of female enlisted patients as are transferred here from the yard dispensary for hospital treatment. All the new temporary wards have a new entrance where steps have been replaced by an inclined plane so that food carriages may have ready access to the building. The new food carriages in use were designed at the hospital and built by the contractors. They give great satisfaction. The cafeteria system of messing, though only in operation for a short time, eliminates food waste, permits considerable saving of food, and insures its delivery warm to the patients.

*Washington, D. C.*—During the past year a large amount of needed repair work has been carried out in connection with the main building of various buildings. Plumbing and fixtures have been generally renovated. Pointing up and plastering has been done in all rooms and hallways, wards, etc. A new Victor X-ray examining table has been installed and numerous changes and additions have been made to the equipment of the X-ray room, so that now this department of hospital work is maintained at the highest possible standard. Minor repairs, alterations, and improvements have been instituted in connection with the department of hydrotherapy, the dispensary, the garage, the eye and ear department, the genito-urinary department, etc. A recreation room, equipped with a pool table, comfortable chairs, tables, etc., has been established in the basement, and is well patronized by the men. The commissary department has been enlarged and rebuilt and it now has no superior, either in the matter of



struction, equipment, or administration. The latest type of hospital bed has been installed in the wards. The sick officers' quarters have been thoroughly overhauled. The quarters for the hospital nurses and the contagious building have been thoroughly overhauled and improved in many details.

*Yokohama, Japan.*—This institution continues to furnish unsurpassed opportunities for officers and men to convalesce from diseases and injuries acquired in the Philippines or in the trying climate of the Yangtze River Valley. At 1 a. m. October 1, 1917, a violent tornado wrought considerable damage to buildings and grounds. Twelve trees were uprooted and the roofing, sashes, shutters, and glass in the main building, the annex, the commanding officer's house, and the servants' quarters were destroyed or injured. Pairs were authorized by cable on learning of the event and cost 50 yen.

#### STATIONS BEYOND THE SEAS.

While the reports from abroad are among the most interesting that come to the bureau those from the war zone can not be published at this time, being largely confidential in their nature or containing references to the work done in association with our allies. However it is appropriate to refer here to the excellent work done by two surgical operating teams, 12 persons in all, under Lieutenant Commander R. G. Lee Conte, Medical Corps, U. S. N. R. F., who responded to telegraphic request for assistance and traveled 400 miles by first available conveyance to relieve the overworked and almost exhausted staff of the American Ambulance, Italy, June 2-8, on the occasion of a large and sudden increase in patients flowing thither from the battle line.

We have ashore and abroad, directly connected with war service, 50 medical officers, 42 dental surgeons, and 1,000 members of the hospital corps. The duties of these officers and men differ widely. Some are serving at naval hospitals or dispensaries in England, Scotland, Ireland, France, and Gibraltar. Others are attached to American naval headquarters in London, Paris, and Rome. A considerable number are scattered throughout the British Isles, France, Italy, and points in the Mediterranean or the Atlantic, the naval air stations or radio stations. Serving with the marines at the front we have 47 medical officers and 7 dental officers, assisted by a suitable number of hospital corpsmen. Both in France and Great Britain there are other military units ashore whose precise duties it is inadvisable to describe, and each unit has its medical and dental officers and hospital corpsmen. Our Navy hospitals, proper, in France have an aggregate of 1,475 beds. Our hospitals in the British Isles can accommodate from 1,700 to 2,000 patients, but in one large hospital, capable of expansion to 825 beds, some of the beds must, at need, be available for patients from the British forces. We have, in addition, abroad temporary accommodations for 400 patients at the smaller stations. Female nurses are attached to the larger hospitals.

The personnel and the medical and surgical equipment abroad are being slowly and carefully but steadily increased to meet all possible needs of the Navy sick and wounded of our shore stations and of the forces afloat.

*Sixth Regiment, Marine Corps, A. E. F.*—The percentage of venereal diseases, 3.55 per cent for the quarter, is considered satisfactory, considering the added temptations to which the men were exposed, the use of alcoholic beverages being more prevalent and illicit intercourse far more open and prevalent in the large cities of France than in the United States. In this connection it might be of interest to state that a leading French gynecologist told the writer that immorality and venereal disease had increased greatly since the outbreak of the war, for the following reasons: Many women, whose husbands had been killed, became prostitutes for financial and other reasons. Many men returned from the front suffering from venereal disease, which they spread rapidly. Young girls, whose fathers and brothers had been killed, lost the restraining influences and discipline of home life and were led astray; while last but not least the control of licensed prostitution, which before the war had been strictly enforced by the "police de mœurs," was now less rigid. There is a great deal of clandestine prostitution in all of the large cities where troops are quartered, and this same physician estimated that 50 per cent of the young clandestine prostitutes are infected with syphilis in its active primary or secondary stages. It is the opinion of a well-known Paris genito-urinary specialist that all of the women who have been on the streets for one month or longer are infected with gonorrhea. That this condition is recognized by the Army authorities is shown by the vigorous steps that are being taken to control these diseases. The usual Navy routine of warnings, prophylaxis, and loss of pay for illness caused by these diseases is supplemented by court-martial for contracting venereal disease, semi-monthly inspections, and frequent reports upon the venereal status of each command.

*Dispensary, U. S. Naval Staff Headquarters, Paris.*—The general health of officers and men has been good. The constant flow of men through this station has entailed physical examination and treatment of more men than are actually on duty here, and a majority of men with venereal disease have been retained for necessary treatment. Thus the percentage of venereal cases at present under treatment (about 12 per cent) conveys an exaggerated idea of the prevalence of this type of disease among the men assigned to duty here. The dispensary consists of three rooms, two being used as offices and examining rooms, the third as a pharmacy and storeroom. At present there is no sick-bay proper. Meanwhile cases are treated at the dispensary or at their dwellings, and those requiring prolonged treatment are sent to the Red Cross Hospital No. 2. Contagious cases are sent to the Pasteur Institute. The men live in various hotels throughout Paris. In the main the quarters are well lighted and ventilated and fairly clean, but are not satisfactorily heated. The men have sufficient food and clothing and seem well satisfied. Owing to their dissemination throughout the city it has been impossible to keep a close watch on the behavior of the men when not on duty. A hotel or other building should be provided where all men attached to the station could be quartered and fed. In such a building a room on the ground floor could serve for venereal prophylaxis and treatment.

*U. S. Naval Railway Battery, No. 1, France.*—Two cases of diphtheria occurring in this detachment were sent to hospital. Provi-

sional quarantine of the camp was then instituted. Cultures were made from all the members of the battery and three possible carriers were discovered and sent away.

*Base 9, for forces based on Gibraltar.*—The duty performed by the ships of this force has been mostly that of convoy and patrol. Liberty has been given in British, French and African ports. There have been no epidemics of importance, and except for the large proportion of venereal infections the health of the men has been very good. There is at the naval base a dispensary with a capacity of 19 patients, a drug room, and an office for the dental surgeon. From a medical standpoint the features at this base, which demand attention and rectification, are the venereal problem and the liquor problem. A limited and unsatisfactory method of segregation and a wholly inadequate system of examination of prostitutes is in force. An effort has been made with official backing to improve the venereal situation, but owing to local conditions satisfactory results are very difficult to obtain. The sale of alcoholic beverages of bad quality and containing an inferior grade of spirits is universal.

*Cavite, P. I.*—Lieutenant Commander T. W. Reed, Medical Corps, United States Navy, in reporting on the sanitary condition of the receiving ship, Cavite, P. I., adverts to the effects upon our enlisted men of moderately long sojourn in the East. As is generally known, the East has its flotsam and jetsam made up of male ne'er-do-wells and adventurers and of females of low character, both native and foreign. "There have been many flagrant examples of physical and moral degeneracy and crime resulting from nothing else than association over a long period of years with American white trash and Filipino women. Those enlisted men who remain here for a long period of time—and there are many who have been here for four, five, and six years—become absolutely lawless and perverted to a degree which is shocking to the best American ideals. It is earnestly recommended that this subject be inquired into and steps taken to remove enlisted men from this station before they have sunk so deeply into the mire which exists in the Far East that they are ultimately a total loss, not only to the naval service but to humanity at large."

*Guam, L. I.*—The average complement of the station (Navy, marines, and insular force) for the past year has been 504 and the average number of sick days per man has been 11.2. One death occurred during the year from drowning; 17 cases were surveyed to the United States. Over 500 school children were treated for intestinal parasites, the oil of chenopodium being found more effective than santonin and thymol. Fifteen hundred cases of all kinds were treated at the native clinic. Of 106 operations performed, 71 were under general anesthesia, and 26 on members of the military personnel. The island of Guam with its total population of 14,500 persons has but one dental surgeon, though it could easily engage the whole time of at least three. The gynecological ward of Susana Hospital was completed and put in commission. It is a two-story structure, with operating room, hall and diet kitchen above, a library, a room for the native clinic and a room for eye, ear, nose, and throat work occupying the space below. The quarters formerly used for the native clinic has been converted into a locked ward, which serves as sleeping quarters for public women undergoing compulsory treat-

ment. The naval cemetery has been well kept up during the year. In April two warrant officers and three men of the German navy, who lost their lives when H. M. S. *Cormoran* was blown up by its own officers and crew, were buried there with military honors. There are 8 Navy nurses on duty at the hospital and they assist in the work of instructing the 12 native nurses, who are maintained by the Susana Hospital or by the special appropriations for lepers, etc. These native nurses, though handicapped by inability to speak English, poor education, and many other drawbacks, have proved useful in the community. The work of the small hospital for tuberculosis, with its male and female ward, which was opened last year, has been greatly hampered in its operations by lack of cooperation on the part of the natives, who entertain strong prejudices against the hospital form of treatment, do not voluntarily seek admission and will only enter it under compulsion. It has not been the policy to compel attendance at the hospital on the part of all tuberculosis cases, since this would often prove a hardship, but instruction in regard to the nature of the disease, its dangers and mode of transmission has been widely disseminated, and time and patience will doubtless demonstrate the usefulness of the building. The treatment of native children infested with parasites has been vigorously prosecuted, as mentioned above, but no marked or permanent improvement, except to specific individuals, can be expected so long as the natives are allowed to continue their insanitary practices in the matter of garbage disposal and until they can be persuaded or compelled to institute proper methods of sewage disposal. The cases of gangosa in the island now number 367. There are 4 lepers and 2 insane. There are 11 dressing stations in different parts of the island, 6 of which are conducted by members of the hospital corps of the Navy, while the balance are administered by native school-teachers, whose work has proved very satisfactory. Experiments have been conducted in the growing of various American vegetables from seeds received from the United States with only partial success, owing in part to the location of the ground, which has a seepage of salt from the nearby bay, in part to the poverty of the soil and the quality of the seed. There are at present, exclusive of temporary officers, 20 officers of the Navy and Marine Corps living in Agaña, the capital, in connection with the island government. There is no resident quarter in Agaña. Houses suitable to live in are crowded in among others less desirable and have no yards, gardens, or lawns. The only air space is in the square in front of the governor's residence. The ground is low, 6 or 7 feet above the sea level, and the high hills south of the town shut off the breeze in the hot season. The naval colony should be removed to the summits of the hills, which have an elevation of 160 to 180 feet and catch most of the breezes. They will be suitable for building sites when the negotiations now pending are completed, as the Government already owns part of the land and will soon be in possession of 50 acres covering all the crests. The climate of Guam is not bad but it has a depressing effect on most of the Americans and is hard on the children. A change from the dead air of the town at sea level, without breezes in the hot season, to the pure air and breezes of the plateaus would be beneficial. There should be a health resort at a still higher elevation, experience in India and the Philippines having shown that all white people living in the tropics require

such a resort. An available site for such a resort is the plateau of Mount Tenjo. A road, which would require surfacing and repairs, leads to this site. The Government could build a large bungalow of the type appropriate to the tropics, which, leased to a competent manager at a nominal rent, would make possible visits for the week-end or longer.

*First Provisional Brigade, U. S. Marine Corps, Port au Prince, Haiti—Health of troops.*—During 1917 there were 676 admissions, averaging 13 per week. The total sick days numbered 3,452. The percentage of sick for the year averaged 4.642. It is interesting to contrast these figures with those of 1916, when, with a smaller number of men in Cape Haitien, there were 952 admissions, a weekly average of 18, and a percentage of sick of 9.42. The reasons ascribed for this very apparent improvement are: The withdrawal of the men from outlying posts; the sanitary measures instituted in the city by the Gendarmerie d'Haiti; and the relief of companies of long service in Haiti by new men.

*Olongapo, P. I.*—The sanitary condition of the naval station has been excellent during the past year, and excepting a few cases of dengue no epidemics have occurred.

The sanitary condition of the town of Olongapo, outside of the naval station, is bad and with the exception of a few improvements about as reported a year ago. The "sanitary canal" back of the town has been completed and a few latrines built over it, but they are insufficient in number. A cut made through the Santa Rita road allowing the free flowing of the tide water which permits of two incinerators—one for the town and one for the naval station—is an improvement.

A 50 per cent reduction of the number of deaths on the reservation this year was probably due to the establishment of a small hospital which now contains 19 beds for adults and 16 cribs for babies. This hospital has been especially helpful in the care of children suffering from intestinal troubles.

The monthly sanitary report for June, 1918, shows that 10,000 persons were vaccinated against smallpox, and there have been no cases of the disease, though for the week ending May 25, 1918, 152 cases of smallpox have been reported in Manila.

*Tutuila, Samoa.*—The health of officers and men has been excellent throughout the year. The total admissions and readmissions were 63; the total sick days, 891. Of these cases, 1 died, 2 were transferred, 1 was invalided from the service and 63 went to duty. The single death was the result of a gunshot wound inflicted with suicidal intent. The dental operations and treatments given during the year aggregated 707. The work made possible by the congressional appropriation for an increased water supply will be completed toward the end of the year 1918. The need of a laundry is keenly felt, as the local conditions, the habits of the natives, the available water make the washing of clothes, as done by the native women, a source of skin diseases. It is estimated that \$7,000 would suffice for this purpose. Leprosy, which is common in other islands of this group, has not been present in American Samoa until this year, when one case was diagnosed here. As there are no provisions at Tutuila for the care of lepers arrangements were made to have the patient transferred to the leper colony, Molokai, T. H., but the authorities de-

clined to receive him. After prolonged correspondence the authorities of Western Samoa agreed to receive him and he was transferred to the leper colony. The expense of maintenance will be borne by the island government for the present. In view of the man's history and of the fact that he had only been a resident of American Samoa for 15 months and because this disease has hitherto been absent in American Samoa, an unsuccessful attempt was made to have the Government of Western Samoa admit responsibility and assume the expense of maintenance of this patient. It would seem advisable to take legal measures to permit the deportation of aliens developing leprosy within a stated period after their arrival in American Samoa, having in view especially the settlers coming from Western Samoa, where leprosy is prevalent. If this is not done our Government will in time be burdened with the care of lepers born under a foreign flag and owing allegiance to it. The general health of the natives continues good, but, in spite of the paternal and benevolent efforts of the naval authorities here, they continue to live as they have in the past, with little regard to personal and general hygiene, and neither instruction nor entreaty looking to an improvement seem to do any good. The infant mortality is high and due principally to the fact that upon being weaned babies are put immediately on a diet of bananas and taro. It is hard to persuade the mothers that this practice is bad and the only way to change it is by the practical demonstration of the value of other methods. This is being attempted and there is at the hospital at present a woman who has lost five infants. She is being taught to modify milk for the use of her sixth child and the infant is thriving on modified milk and under the careful regimen under which it is being raised. The most valuable agency for reforming the habits of the people and for improving conditions of life among them is the education of native nurses. A school for them was opened in February, 1914, with three pupils, who graduated in 1916 and were assigned to duty in the eastern and western districts and at the Samoan Hospital, with alternate periods of service at these different posts. The second class of trained native women, consisting of four members, was graduated in June, 1918. Seven women are now under training at the school, two of whom will graduate next year. During the year the patients treated at the Samoan Hospital and its branch dispensaries numbered 15,529. Operations were required in 311 cases. The total deaths for the year were 61. The visiting nurses administered 3,736 treatments in the various districts. In November, 1910, the commandant ordered that all medical and surgical treatment given by medical officers of the Navy to the natives of American Samoa should be without charge. In April, 1911, the Navy Department authorized the erection of the present Samoan Hospital, provided that no part of the cost of the maintenance should be charged against any naval appropriation. The hospital, consisting of a central administration building, operating room, and sterilizing room, was erected at the charges of the insular government and each district erected a large house of native design and construction for the accommodation of patients. Since these buildings were put up the Navy Department erected a two-room dormitory for the hospital corpsmen on duty there. The expenses incident to free treatment in this institution and its branch dispensaries have been met by the proceeds from

bazaars and fairs, but the revenue from this source was insufficient and so in February, 1914, a drug store was erected, which in two years needed to be considerably enlarged. The revenue from this establishment is ample for the expenses of the hospital. The drug store has become a center of social intercourse for the natives, who come by the hundreds in the afternoon to enjoy the drinks from the soda fountain and gossip about neighborhood and island affairs. The gross receipts from the drug store in 1914 were \$584. For the calendar year 1917 the cash taken in amounted to \$15,265.49.

*Virgin Islands of the United States.*—Captain C. S. Butler, Medical Corps, United States Navy, reports the entire reorganization of the health department of the islands, the largest of the civil departments as regards personnel and expenditure of funds. This was one of the first duties which confronted our medical officers when the islands passed from the control of Denmark to that of the United States. The difficulty of the work was enhanced by the lack of mortality statistics, records and data needed as a basis for recommendations, appropriations and reorganization. Thanks to Commander D. C. Crowell, Pay Corps, United States Navy, and Lieut. R. L. V. Stratton, Pay Corps, United States Navy, the entire accounting system of the hospitals and other institutions under the cognizance of the health department has been revised and improved. The lack of a trained nursing force to second the efforts of physicians in the professional care of the civilian sick was seriously felt at first, but training schools have now been established in the municipal hospitals of St. Thomas, Frederiksted and Christiansted, supervised by members of the navy nurse corps (female), who deserve great credit for their patient, efficient efforts in this connection. It is proposed to establish an obstetric service and an obstetric ward in each of the municipal hospitals where this has not already been done. The sanitary work of the local governments is conducted in a measure by civilian physicians, but medical officers of the Navy, hospital corpsmen and Navy nurses fully participate in all sanitary work carried on in the islands. The municipal hospital service of St. Thomas and St. John has been conducted at an expense of 169,302 francs, which includes all expenses except certain fees for death certificates and funeral expenses of the poor. This sum has covered 34,727 sick days, at an average per diem subsistence rate of 32 cents. This hospital service has afforded relief to 39 per cent of the entire population. The expenses of the municipal hospital service of Frederiksted and Santa Cruz, from April, 1917, to July, 1918, amounted to 118,180 francs, covering 23,701 sick days, at an average per diem cost of 37.6 cents. Other government institutions are the Invalid Hospital, the Insane Asylum and the Leper Asylum. The sanitary, hospital, and educational work of the naval personnel has been in addition to their duties in caring for the sick of the naval station proper.

*Marine Barracks, Virgin Islands of the United States.*—The main barracks are at Charlotte Amalie, with subsidiary posts at Christiansted, Mosquito Bay, East Point. The general health of the command has been good. Towards the close of the year an epidemic of dengue has been in progress and about half the officers and men have been infected. No serious after results have been noted. While in general the sanitary arrangements are primitive and simple, constant supervision

and minor improvements have rendered the quarters occupied reasonably suitable. Wherever possible, buildings have been screened and screens have been put on all cisterns used to collect rain water for drinking purposes, thus eliminating to a large extent the presence of mosquito larvae. Systematic instruction in regard to venereal disease and its dangers has been maintained. Athletics have been encouraged in every way. Baseball, football, basket ball, and swimming are very generally indulged in by the men.

#### NAVY YARDS, RECEIVING SHIPS, TRAINING STATIONS, ETC.

U. S. NAVAL ACADEMY, ANNAPOLIS, MD.—The following statistics represent the work done in the medical department compared with that of the previous year:

	1917.	1916.
Number of admissions, all cases.....	2,552	1,605
Football, midshipmen only:		
Admissions and readmissions.....	60	84
Sick days in sick quarters.....	90	151
Sick days in hospital.....	215	474
Number of vaccinations, smallpox.....	1,540	712
Number of inoculations, typhoid.....	1,487	929
House visits made by medical officer.....	5,463	4,917
Average number daily house visits.....	15	13.5
Office visits at dispensary.....	3,575	3,833
Confinement cases attended by medical officer.....	43	41
Number of prescriptions filled.....	7,052	8,392
Average number filled per day.....	19	23
Physical examinations for civil service.....	105	74
Physical examinations of midshipmen.....	1,134	828
Physical examinations of candidates.....	823	676
Preliminary physical examinations, candidates.....	105	43

There has been an expansion at the Naval Academy during the year to accommodate the increased personnel due to a greater number of midshipmen (1,440), and the presence of classes of reserve officers, totaling 450 at one time, for intensive training. Twelve hundred midshipmen are quartered in Bancroft Hall and 240 in the barracks. This method of housing them is not satisfactory, as the general plan is to assign four to the rooms of Bancroft Hall which were designed for two, and at the barracks the living space is divided into dormitories. In these two systems of housing there is ample air space, but the crowded conditions make it very difficult to deal with contagious disease, especially preventing the spread of contagion, for many more contacts have to be dealt with. This has been demonstrated during the present academic year when nearly all the exanthematous diseases have made their appearance on the station. Fortunately the one which so far has been most prevalent is German measles; it would be much more serious if the contagion of scarlet fever or diphtheria had been fought.

The artificial lighting of Bancroft Hall has been a problem ever since the building has been occupied, and three changes have been made in the system in trying to get the best and to keep up with progress in the art and science of electric lighting. The system which is now being installed, the principle being semidirect lighting, is thought to be the last word on the subject, having been determined after much experimenting by Commander G. B. Tribble, Medical



Corps, United States Navy, with both lights and reflecting surfaces. The painting of the rooms is white drop ceiling and light buff walls, matt surface, with a dark green dado about 20 inches above the floor for wear and tear. The light is from a Mazda C, 150-watt bulb; the bowl of the fixture is of Sudan glass. The diffusion of light thus produced more nearly approaches that of sunlight than by any other known system, and is therefore more acceptable to the eyes.

The drinking water is obtained from two artesian wells bored to the depth of 600 feet. The supply is 550,000 gallons daily. The water at the source contains too much iron to be agreeably potable. From the wells it is pumped into settling tanks, where, by oxidation and sedimentation, the iron salts are largely precipitated. From the settling tanks the water is pumped to the power house, where it is passed through a filtration of sand and gravel. The water supplied to Bancroft Hall is again filtered in the refrigerating room before being piped as cold drinking water to the bubbling fountains on the different floors of the hall. In the basement of Bancroft Hall, where the bubbling fountains have not been installed, the drinking cups for the mess attendants are kept submerged in a solution of formalin. This method is also carried out at the barracks for the midshipmen quartered there. It has been recommended that the latest improvement of the drinking fountain be installed—that is, the inclined jet.

Feeding 1,440 midshipmen, 450 reserve officers, and 200 mess attendants is a problem of no mean proportions; especially when so many factors have to be considered, particularly the high cost of living in its effects upon a low mess bill. Good food from the soup to the dessert is demanded, but if the mess bill is higher for the month, there are a good many to ask the reason why. That the food is ample is shown by the increased weight of the midshipmen, the average gain being about 10 pounds in the first six months at the academy; that is, a class of 200 will take on a ton of flesh. The menus for the coming week are made out by the commissary officer and submitted to the superintendent, commandant, and senior medical officer, so that any change desired or recommended can be made. In the dietary, variety and the number of calories are taken into consideration. As the midshipmen are growing, developing, and working both mind and body at the same time, the number of heat units per day is about 4,500, a very liberal allowance. On feast days special menus are served.

All beef and mutton is bought of wholesale houses in Baltimore, and is Government inspected, and again inspected by a medical officer of the Naval Academy. The cold storage now being installed is up to date, and, by proper ventilation, molds, which are often of a pathogenic nature, are kept from forming. The pork is obtained from hogs raised on the Government farm. The hogs are given anti-cholera serum and slaughtered under direction of an official of the Bureau of Animal Industry, Department of Agriculture. The garbage from Bancroft Hall is used for feeding the hogs. It is a matter of interest that formerly a contractor was paid to remove the garbage, but now this liability is converted into a resource. The bread is made and baked in a sanitary bakery; the dough is mixed and worked by an electric mixer, so no sweat of the brow enters into it. The kitchen and all spaces which have to do with

the handling and preparation of food are screened. The room for the serving of meat is doubly screened. The range in the kitchen is under a metal hood, from which ventilators lead and through which air is forced by electric fans to the top of the building, so there are no offensive odors in the living quarters. There are machines for slicing meat, dicing vegetables, etc. The most important machine is the Victor dishwashing machine, which washes articles thoroughly and sterilizes them, and they are dried by their own heat, thus eliminating the questionable dish towel. Oakite, a mineral compound, has been substituted for soap, and seems to be superior in several respects. About 15,000 pieces can be washed in an hour. It is a very compact machine, and could well be installed on board ship. The 200 mess attendants are now enlisted or enrolled. They are inspected for venereal disease, tuberculosis, etc. It is also seen that their hands are clean and finger nails short and clean.

The milk is furnished by the Naval Academy dairy, which is under the management of the commissary officer. The herd of Holstein cows, now numbering over 200, and the methods and equipment of the dairy are under the management of the Bureau of Animal Industry, Department of Agriculture. The dairy is regularly inspected and scored by officials of this bureau and the herd tested for the presence of tuberculosis and treated for such diseases as may appear, as garget, contagious abortion, etc. The bacterial count of the milk rarely reaches as much as 5,000 per cubic centimeter; as 10,000 per cubic centimeter is allowed as the minimum for certified milk and 100,000 for class A milk in New York City, it is evident that very pure milk is furnished. The effect of such milk has been wonderful in eliminating gastro-intestinal troubles among midshipmen and is a preventive against an occurrence of tuberculosis and typhoid fever, for, although the midshipmen are protected by antityphoid inoculation, the civilians of the station are not, and there has not been a case of typhoid fever on the station since December, 1910. About 320 gallons of milk are now being furnished daily. Fifteen minutes after the milk is drawn its temperature is reduced to 35°. It is then transported to the Naval Academy and put in the butter and milk room, the temperature of which is kept at cold-storage degree, so the germs are not allowed to multiply.

The matter of personal hygiene is taken up the day the candidate is examined by the medical board. He is required to be clean when examined. The necessary dental work, cleaning, inlays, etc., has to be performed before entrance. Physiques have to meet standard requirements. As soon as possible after entering he is measured by a universal dynamometer, under the supervision of a medical officer, weak groups of muscles are noted on his chart, and he is required to develop them before he is allowed to enter strenuous athletics, being put on the "weak squad" for this purpose. All midshipmen, whether weak or strong, are given a course in a modified Swedish-movement drill during the first summer at the academy, which insures general development. Swimming is taught at this time, and no midshipman is allowed to graduate unless he qualifies in swimming, which means swimming with three different strokes, attaining a certain standard of speed, distance, and endurance.

As soon as a midshipman is appointed he is vaccinated against smallpox and is given inoculation against typhoid and paratyphoid

A and B, so these diseases are eliminated. There has not been a case of typhoid in eight years. The midshipmen are given talks on venereal diseases, the importance of continence and clean living, etc. The occurrence of venereal disease among them is very rare, not more than eight cases in as many years. It is possible that some such cases may be concealed and treated by the civilian physicians in the city, but every midshipman is examined annually, and besides very evident complications of these diseases could not be concealed, and these have rarely occurred here.

Great care is taken to guard against the introduction and spread of contagious diseases. Medical officers serving here are impressed with the necessity of recognizing these diseases when first seen, so that there may be prompt isolation and transfer to the hospital. In the milder exanthemata, as German measles and mumps, if there is only one or a few foci of infection the roommates as contacts are also sent to the hospital to remain during the period of incubation. If there are many foci, there is a daily inspection of contacts. In the more severe diseases, as measles and scarlet fever, etc., all contacts are transferred to the hospital and remain during the incubation period. The rooms of those having such diseases are fumigated and bedding sterilized.

There are many other regulations which are made for the welfare of the midshipmen. The windows of their rooms are required to be open when they are absent. The temperature of the buildings is regulated as well as possible. A dust-laying preparation is used by the corridor sweepers. The section rooms must be ventilated, and desks are so arranged that the light falls properly. When on the rifle range it is required that the midshipmen's ears be protected by putting cotton lightly in them or using one of the patented forms of ear protectors. The uniform of the day is prescribed, so a midshipman has to wear an overcoat and rubber shoes whether he will or no.

So it seems that no measure, however small, is neglected to keep these Government wards in good health, and the results are generally satisfactory.

U. S. NAVAL DISPENSARY, WASHINGTON, D. C.—The clientèle of the dispensary since war was declared has expanded along with other activities of the Navy. At the present time there are probably over 8,000 people who receive professional care from this source. Some of those seen have really no official status, yet are dependents of officers and men now departed, and it is impossible to refuse them treatment. As high as 125 patients have been treated at the dispensary in a single day, hence the work has been carried on under the most adverse conditions. As it was impossible to secure a suitable building to relieve the congestion, Lieutenant Commander G. B. Tribble, Medical Corps, United States Navy, the eye specialist, was transferred from the dispensary to the naval hospital. This relieved the conditions to some extent, but the change has not been entirely satisfactory. The hospital is so far distant from the Navy Department that much time is lost by those needing special treatment. Likewise, much confusion is experienced in keeping the health records of those patients who come under Lieut. Commander Tribble's care.

The cost of upkeep of the two automobiles used by the attending surgeons from July 1, 1917, to June 30, 1918, was \$1,086.86, an amount which might seem excessive, yet without these cars the outside work could not have been done. Requisition for a third automobile has been made and approved by the bureau for the use of the third attending surgeon, who will, as far as possible, devote his entire time to the care of the reservists, who number about 3,800 exclusive of those on duty at the navy yard.

Reservists requiring hospital treatment are sent to the Georgetown University Hospital. This arrangement has been perfectly satisfactory, yet this only holds for noncontagious diseases. For the coming year arrangements have been made to send cases of measles and diphtheria to the Providence Hospital. The care of scarlet fever patients (female) will prove a serious problem, as only the Garfield Hospital will care for that type of disease, the facilities being limited. During the winter months it is almost impossible, at times, to transfer scarlet fever patients to this hospital. Of course, all male reservists with contagious and venereal diseases are sent to the Naval Hospital, Washington, D. C.

The expenditures for the year ending June 30, 1918, were:

Rent for premises	\$1,200.00
Fuel	69.00
Electric current and gas	169.46
Ice	26.14
Removal of rubbish	60.00
Laundry, coats	21.90
Automobile accessories and repairs	1,086.86
Wrapping paper	140.21
Surgeons' necessities	929.37
Medicines on Supply Table Form "B" and Form 4	2,311.00
Dental supplies	170.00
Periodicals	67.00
Vaccines	97.70
Costumers, oak, 6 for Bureau Medicine and Surgery	22.50
Hand register machine, for Bureau Medicine and Surgery	2.70
Glycerine soap	10.43
Eureka cabinet section	38.50

These figures include the maintenance of the two automobiles. In view of war conditions, it is considered that the amount expended is not excessive, and that due economy has been observed.

Medical attendance furnished to officers and enlisted men on the active and retired lists and to their families and to the Naval Reserve Force was as follows:

From July 1, 1917, to June 30, 1918, 3 members of the dispensary staff paid 4,846 house calls and gave 4,275 consultations or treatments. During the same period 2 other members of the dispensary force, with 4 medical officers temporarily on duty there, attended to office consultations and house calls to the number of 11,879. To the above must be added 110 "bakings and electrical treatments;" cowpox vaccinations, 95; typhoid prophylaxes, 431. The eye, ear, nose, and throat work involved the treatment of 8,225 cases.

There were 1,320 dental treatments given during the year.

By reason of women being enrolled in the Naval Reserve Force for clerical duty, it became necessary to add to the dispensary a new department under the charge of Lieutenant (Junior Grade) J. J. Mundell, Medical Corps, U. S. N. R. F. This includes diseases of

women and obstetrical work, the latter confined to the wives of officers and men, both on the active and retired lists. He has attended to 862 office and house calls, performed 13 major operations, and seen 26 obstetrical cases.

Nineteen thousand five hundred prescriptions have been compounded promptly and efficiently, as compared with 13,696 during the preceding year. The Naval Reserve Force has made the greatest demands for medical and surgical supplies, and especially upon the time of the officers serving at the dispensary. Two hospital corpsmen are indispensable for the transaction of clerical work. One man devotes his whole time to the health records. The sick list averages 100 names daily.

*Navy yard, Washington, D. C.*—The sanitary condition has been good throughout the year. In addition to the usual enlisted personnel there are now upward of 250 women serving in the capacity of yeomen in this yard. They live in widely scattered sections of the District and entail three or four professional calls daily outside the yard. The number of civil employees working in the yard has increased from 4,000 to 8,200. Treatments for accident or injury and redressings have amounted to 7,934.

*Indianhead Proving Ground, Md.*—In view of the close relation between the civilian settlement and the proving ground and of the lack of any sanitary control of the district, it was recommended by the sanitary inspector that the Bureau of Medicine and Surgery take up with the Department of Health of Maryland the question of designating the medical officer on duty as a State and county health officer with power to enforce State health laws. These laws are very comprehensive and are ample. This procedure has been followed by the State of Virginia at the Marine Barracks, Quantico, and at the Hampton Roads naval base. The sanitary advisers of the seventh and thirteenth naval districts have received State authority from Florida and Washington, and in all of these instances the results have been satisfactory.

Pending completion of sewer connections, the Westinghouse-Church Co. has installed the Kaustine system of sewage disposal. This consists of a pit 4 by 6 feet and about 6 feet deep, which is filled with cinders; in the upper part of the pit is installed a cylindrical tank which receives the toilet-seat washings. Fluids escape into the soakage pit, the solid residue being retained in the tank and treated with a caustic from a small tank. The method is said to be satisfactory and is being installed by other contractors.

The medical officers on duty at the proving ground have effected marked improvement in the sanitary condition of the neighborhood. The campaign against malaria has been eminently successful through the concerted effort made to exterminate mosquitoes. The so-called "niter cake," or acid sulphate of soda, a cheap local by-product, has proved of great value when used to prevent the breeding of larvæ in marshes and still waters. This substance should be finely divided and sprinkled over the surface of the water, or, better still, sprayed in concentrated solution when the surface of the water is agitated.

*Sick Quarters, Marine Barracks, Quantico, Va.*—The sick quarters of the Marine Barracks at Quantico, Va., was opened for patients on August 13, 1917. It serves as the base hospital for the various Marine organizations forming or training at Quantico. At present

it consists of a dozen single-story frame structures grouped together near the banks of the Potomac River in the southeasterly portion of the reservation. These buildings for the sick are well separated from those used for barrack purposes, and their general location in reference to the topography of the camp from a sanitary point of view is advantageous.

There are five general wards and one ward for sick officers, each measuring approximately 100x20 feet, which collectively afford accommodation under normal conditions for about 150 sick. This permits over 65 square feet of floor area and 800 cubic feet of air space per individual. The wards are double floored, with sheathed walls, and the ceilings are lined with plaster board. Between outer and inner layers on all sides are strips of heavy weather paper, which provide further protection. An administration building, hospital corps dormitories, galley and mess hall, medical storerooms, and ambulance shed comprise the additional structures.

The water supply is derived from deep wells and is piped from the reservoir for the camp. The quality is considered excellent, but in quantity there has been at times a deficiency, and the pressure is never entirely adequate for the provision made in case of fire. The lavatories of each ward contain sinks, showers, urinals, and water-closets. Hot water is provided by heaters, one in each of the washrooms. The hot-water tank from the heater is connected with all sinks and showers, and together with the heater, serves to warm the lavatory for bathing in cold weather. The waste and soil pipes from the hospital discharge into the main sewer from the barracks, which in turn empties into the Potomac River. Garbage is burned in an incinerator near the galley and noncombustible refuse is removed daily by wagon.

#### FIRST NAVAL DISTRICT.

*Navy yard, Boston, Mass.*—The health of officers and men attached to this station has been excellent. There have been no epidemics. The usual sanitary inspections of all premises in the yard have been carried out and many important permanent improvements have been made. The total number of civilian employees to whom medical or surgical aid has been rendered is 5,373. In 4,727 cases the disability involved no loss of time from work. The average number of days of absence in those who lost time from work was 19.30.

*United States Naval Aviation Detachment, Cambridge, Mass.*—The United States Naval Aviation Detachment occupies the building known as the Walker Memorial, one of a group of buildings of the Massachusetts Institute of Technology facing the Charles River. The building was primarily intended to be used as a dining hall and gymnasium and is well lighted and ventilated.

The food is prepared and served from the cafeteria under the management of the Massachusetts Institute of Technology. The men are given their subsistence and allowed to buy their food from the cafeteria. They eat in the main dining room. Both the Army and Navy student aviators are served by the café. Their food is well prepared and of good quality.

Ten minutes of calisthenics before breakfast, one hour of drill, and one hour of calisthenics in the afternoon are given daily, Satur-

day afternoons and Sundays excepted. The bowling alleys (4) in the basement are available for use by the men.

The sick bay contains six beds. It is seldom that they are all occupied. Only the minor cases of sickness, rhinitis, vaccinia, sprains, antityphoid inoculations, etc., are treated here. When the patient is considered sufficient ill or likely to become very ill he is immediately transferred to the United States Naval Hospital, Chelsea, Mass. No death or serious illness has occurred at this station.

The medical staff of this station consists of three officers, one of whom is attached to the Harvard Radio School, with additional duty here in experimental psychomotor work. There are five hospital corpsmen on duty.

*U. S. Naval Radio School, Harvard University.*—The school is located at Cambridge, Mass., in the center of population of a metropolitan district. When first organized the school occupied a part of one of the college buildings. It has gradually extended until half a dozen buildings, including the Hemingway Gymnasium, are used for classrooms and barracks. As the school now consists of 3,400 officers and men, a large number of them live in boarding houses, rendering policing and medical supervision difficult. The men come from various training schools and camps and, to reduce the danger of contagious disease, they are kept in detention for a week or longer on arrival, as long as the conduct of the classes is not interfered with by so doing. Some 2,600 men are assigned to barracks, but many of them live in boarding houses in Cambridge and vicinity. These men have been formed into special companies, and their allotted places in barracks have been filled. Their addresses are noted, and the men are informed of the rules by which they must regulate their conduct. Their quarters will be systematically inspected by a medical officer and another officer appointed by the commanding officer, and rooms which are found undesirable will have to be given up. Messing is conducted under a contract with the Harvard authorities. Ample time is allowed for meals and 1,200 men can be accommodated at a sitting.

The sick-bay first operated was inadequate, having only 20 beds. Winthrop Hall has now been secured for the purpose. It is a four-story building and will accommodate 150 patients. A small surgical dressing room, diet kitchen, necessary bathing facilities, etc., have been installed. The venereal problem is here as elsewhere difficult of solution. There are no known houses of prostitution in Cambridge and they are not common in Boston, but street soliciting exists to a slight extent in Cambridge and is extremely prevalent in Boston. Since the war a new and not strictly professional type of street-walker has appeared. It comprises young girls at the romantic age. They are seen in large numbers at the moving-picture shows, in amusement parks, and on the streets of shopping and factory districts. These girls are fascinated by the uniform and, though many come from respectable homes and have by no means reached the out-cast stage, their relations with our men are frequent and, of course, a certain percentage of the relationship is immoral. Systematic instruction on the dangers of venereal disease has been carried out, and the incidence of venereal disease has fortunately been low. This is due to (1) relatively good environment, (2) diversion of energy

by hard study, (3) the work of the local committee on health and recreation. The work of this committee has been by far the most important of the various agencies. Dances and social functions have been arranged and, better still, a system has been devised whereby the men have been introduced into the homes of the citizens of the neighborhood. Over 1,000 men have been definitely placed as "friends of the family," and practically the entire personnel has been given an opportunity to make friends among the citizens, the great bulk of the men accepting with eagerness. Over 1,000 invitations had to be refused on Thanksgiving Day because the men were already engaged. Many churches have done good work in opening up their houses and those of the members of their congregations to the men of the Radio School. Chaplain W. B. Ayers, United States Navy, has fitted out a library and reading room, using the entire old building of the Theological Library.

*U. S. S. Southerery.*—As in the past the use of this vessel for the detention of prisoners is unfavorably commented on by medical officers serving on her.

#### SECOND NAVAL DISTRICT.

The medical aid to the commandant, Second Naval District, reports that during the calendar year ending 1917 the total number of men examined at Newport was 6,707, of whom 5,391 were accepted, 1,316 rejected. Besides recruiting work the examining surgeons have examined aviators, assistant paymasters, pay clerks, ensigns, and warrant grades. As soon as the war expansion began a dispensary was established in the State armory in connection with the reserve personnel, Lieutenant Commander W. D. Owens, Medical Corps, United States Navy, being the senior medical officer on the staff at that time. His services were invaluable. His work was continued by Lieutenant W. L. Rathbun, Medical Corps, U. S. N. R. F., whose work has been painstaking and efficient. Cloyne Camp was completed and occupied in June, 1917. The location is very satisfactory. The sick bay in this camp is designed merely to care for patients with comparatively trivial ailments, with a view to relieving the congestion at the naval hospital. The dispensary of the section base is at the armory. It attends to the needs of patrol boats, matériel section, and supply section. The district is now provided with adequate dental service.

In view of the number of men that have been received from all parts of the country, without any period of detention for observation, it is considered that the district has been unusually fortunate. The most serious menace was a diphtheria epidemic in Newport last summer. The health authorities allowed a week to elapse before information was given to the medical officers of the Army and Navy that an epidemic had occurred. It was definitely proved that the infection came from ice-cream and by chance the firm through which it was disseminated did not happen to have the ice-cream contract for the current quarter. The few cases that occurred among the reservists were those over whom the medical department had least supervision, men scattered about the town, belonging to the patrol boats, or to the matériel section.



This epidemic emphasized the need of Government control of the local health conditions in the vicinity of a large naval station or cantonment. At the time when this epidemic prevailed there were about 15,000 men of the Army and Navy stationed in this vicinity. An endeavor was made to cooperate with the local health authorities to help stamp out the epidemic and the usual quarantine restrictions were in force. An epidemic of diphtheria also occurred this fall at New London, mostly among children, in contrast to the epidemic in Newport, which was principally among adults. Since the winter months began diphtheria has again appeared in Newport, not to a great extent but virulent in character. A considerable number of scarlet fever cases have been reported in Newport, but no infection has occurred among our men. The diseases that have caused most concern, especially at the beginning of the organization before the proper quarters had been provided, were measles, pneumonia, and cerebro-spinal meningitis. Thanks to the cooperation of the American Red Cross, which aided us promptly with a supply of woollen blankets, sweaters, etc., there was no occasion for exposure from insufficient clothing. When cerebro-spinal meningitis appeared, Dr. Simon Flexner, of the Rockefeller Institute, by invitation of the Bureau of Medicine and Surgery, came to Newport to instruct us as to what could be done in case of future epidemics and to give the medical officers the benefit of the most recent work at the Rockefeller Institute. Major E. K. Dunham, of the Army Reserve Corps, was ordered to the naval hospital, where he examined the cultures from several suspected carriers, all of which proved to be negative. After consultation with the medical officer in command of the naval hospital it was planned to provide a laboratory, with complete equipment for the examination of the many carriers that were anticipated should an epidemic occur during the winter months.

There is some overcrowding on the smaller patrol boats, but it can not well be obviated. In spite of it the health of the personnel has been good. In general the work of the reserve medical officers has been of a high grade and while some have shown exceptional ability for military service all have been animated by a desire to do their full duty.

*Newport Section, Naval Reserve Force.*—In July, 1917, a mild diphtheria epidemic preceded by an epidemic of septic sore throat occurred in Jamestown. Within a week cases developed in Newport and ran up to several hundred. They were mild in type. Only 12 cases developed in the Naval Reserve Force, thanks to prompt quarantine measures, the boiling of milk, and the exclusion of ice-cream from the dietary.

A large percentage of the cases of gonorrheal infection was among the recruits when they first reported for duty, the infection having occurred between the time of enrollment and the call to active service. Considering how much one hears of the temptations which beset a young man in the naval service it is interesting to note the fact that men enrolled, then went home and contracted venereal disease during the inactive period when they were waiting a summons to the colors. This seems to reflect on the local influences and surroundings of the home towns and on individual stamina rather than on the Navy. It confirms previous observations and lays fresh emphasis on the absolute necessity for reform in civilian communities if permanent change for the better is to be effected among the men in uniform. Here the

men received the usual lectures and comprehensive instruction on personal hygiene, venereal disease, and the importance of sexual continence. The camp on Cloyne Field was completed in August, 1917, and consisted of 20 barracks, 10 mess halls, 7 latrines, an administration building, sick bay, storehouses, heating plant, etc. The sick bay has a ward  $77\frac{1}{2}$  by 25 feet which allows 775 cubic feet of air and 80.7 square feet of floor space for each of the 24 patients. The health of the men serving on the patrol boats has been good notwithstanding the fact that some overcrowding on them was unavoidable owing to their being in the main converted pleasure boats not designed for war purposes. The weather during the winter was the severest that has been known in this section for 50 years. Sanitary inspections of the patrol boats were systematically made and their personnel received lectures in first aid. In the camp sanitary squads operated continuously with gratifying results. The food has been of good quality and well prepared, but cooking had to be done by electricity at a relatively high cost. Dish washing was by hand and because of the scarcity of hot water it was often impossible to scald the dishes. The men on guard are furnished with a "full bag," which includes "oil-ers" and rubber boots, and the men in the patrol boats are outfitted with the special nonleakable suits, including helmets. All of the men are furnished with sweaters. Owing to the scarcity of material the texture and durability of the clothing are not as good as formerly.

*Block Island Section.*—Particular attention has been paid to the routine inspection of small coast patrol vessels. Those of modern construction and averaging 15 men as complement have adequate heating, lighting, and ventilating facilities, with water-closets, urinals, etc. On the other hand, converted vessels, originally intended for coastwise fishing, have required constant supervision in regard to cleanliness of toilets, mattresses, cooking utensils, garbage, etc.

The medical headquarters for this section has been located in a rented building, originally a private residence with a basement, 10 rooms and a bath, lit by kerosene lamps, and heated by steam. It is easily accessible from the administration building and close to the building occupied as a residence by the personnel of the medical department. Cases requiring protracted medical care are transferred to the hospital, Newport.

*New Bedford Section.*—This section was organized July 1, 1917, and up to December 16 headquarters and medical department were located in the customhouse. Subsistence was furnished by the Government and men lived either at home or in boarding houses, except those on patrol duty or in the guard detail. The guard detail occupied quarters at the local Y. M. C. A., and later at the Yacht Club. The fact that the men worked in such widely scattered places created unusual conditions and necessitated a modification of the ordinary methods of medical procedure. Personal inspection of the men was almost impossible and the lack of personal contact not only interfered with treatment but also with imparting instruction on health and hygiene and with giving the advice which the new men required. The supervision of the food of the men eating in boarding houses and restaurants was impossible. The food supplied to the patrol boats was excellent and varied. Food inspections were difficult. A general sanitary inspection of the boats was made

twice a month. The medical supplies furnished were adequate and satisfactory in every way. There was no sick bay where patients could be kept, so trivial and minor cases were treated in their rooms or the dormitory, and those requiring hospital treatment were transferred to the Naval Hospital, Newport, R. I. A contract was made through the United States Public Health Service with the local hospital for the treatment of such serious cases, unable to endure transportation, as might occur. Happily it has not been necessary to make use of this contract. In the month of July it was found that certain sewer pipes emptied into the waters around the State Pier where patrol boats anchored. As the water here was practically stagnant it proved an undesirable anchorage. With the aid of the New Bedford health commission an effort was made to have the flow diverted to another point on the river, but this as well as the construction of a septic tank was found impracticable. This, among other things, led to the abandonment of the Emigration Building, and transfer to Fairhaven, Mass. The transfer to Fairhaven was made on December 16. Here all the departments are compactly located under one roof. The building is well suited to naval purposes and close to the water, where docking facilities are good for the patrol boats. The sleeping quarters are excellent, being large and well lighted and ventilated. The plumbing is modern and sanitary. Water is piped to the dock for the use of the patrol boats. While sewage is discharged at the end of the dock there is a good depth there and a good tidal flow which prevent stagnation. A gymnasium is being equipped and every effort will be made to encourage the men to use it. The medical department uses one large room, 96 by 36 feet, partitioned off so as to give a sick bay with 12 beds, a contagious ward with 2 beds, an operating room, a dentist's office, doctor's office, clerk's office, dispensary, diet kitchen, recreation room, lavatory and quarters for the hospital corps. Besides the medical officer and the dentist there are eight members of the hospital corps in the medical personnel. The complement in July was 45 and by December, 190. There have been only two cases of gonococcus infection treated, of which one was contracted prior to enlistment.

*Nantucket Section.*—The site is high land with a gentle slope to the water. An efficient sewerage system has been installed, the sewage being deposited far out in the harbor. The dispensary and sick bay were established August 20, 1917, in a building well suited for the purpose and easily reached by the personnel. The personnel consists of one medical officer and two members of the hospital corps. The building is equipped for 10 patients, has hot and cold water, a diet kitchen, bath, electric light, office furniture, etc. The health of the personnel has been excellent and there have been no deaths from disease or injury. All foodstuffs going to patrol boats are inspected by the medical officer. Each boat has a galley stove and can prepare warm meals for its crew.

*Submarine base, New London, Conn.*—

Average complement:		Percentages of sick.
First quarter, 1917.....	389.....	1.18
Second quarter, 1917.....	531.....	1.44
Third quarter, 1917.....	855.....	.734
Fourth quarter, 1917.....	1,143.....	1.47

Total admissions and readmissions, 542; to duty, 488; dead, 3 (2 drowning, 1 cerebro-spinal fever).

The character of the duty aboard a submarine is such that officers and men should be in the best physical condition, mentally alert, and able to control their emotions, as it might easily happen that one excitable or unstable individual would demoralize the entire crew. During a dive the commanding officer is closely observed by almost the entire personnel of the boat, and any nervousness and uncertainty would at once be apparent. The officers should be able to inspire confidence under the most trying conditions. It is again recommended that the greatest care be exercised in selecting officers for this duty. Officers and men should be excluded from this duty who have any tendency to one or more of the following conditions:

- (a) Intraabdominal trouble which might require sudden operative relief.
- (b) Chronic tonsillitis or other throat affection.
- (c) Marked tendency to common colds.
- (d) Middle ear disease.
- (e) Ozena.
- (f) Foul breath from any cause.
- (g) Unstable nervous system.
- (h) Obesity.

It is necessary in speaking of health conditions to remember that the crew of a submarine is small and that practically every man has an important station. With a few men on the sick list it is quite possible to interfere seriously with the operations of the boat. All men with venereal disease, acute tonsillitis, influenza, or any transmissible disease are temporarily relieved from duty aboard submarines owing to the limited amount of space and the increased danger of infecting others. For these reasons, also, it is necessary to keep these men on the sick list for a longer time than would be the case elsewhere or else to assign them to other duty until entirely well.

The new barracks contain sick quarters capable of accommodating 20 patients, a dispensary, operating room, examining room, dental office, diet kitchen, and waiting room. The old barracks were overcrowded for some time and the Y. M. C. A. gymnasium and all other available berthing space outside of this building had to be used. The congestion was relieved by utilizing the steamer *Ransom B. Fuller*, which had accommodations for 500 men. In June, 1917, a dental surgeon reported for duty. He has been so busy with urgent work that it has not been practicable as yet to carry out a systematic dental examination of all the men.

The laboratory unit from the Naval Medical School, Washington, D. C., consisting of two medical officers and four hospital corpsmen, with complete laboratory equipment, responded to a call for assistance in connection with a study of the meningitis problem early in December.

The hospital corps has been increased during the latter part of the year. The nursing service has been furnished largely by comparatively new men with relatively limited experience in naval work. In the main, these men have been very capable, quick to learn, and willing and earnest in their work. They are given intensive training as far as practicable and daily physical drill when the weather permits.

It is not only necessary that the uniform for use aboard submarines be warm, but it must also be as near waterproof as possible and allow

the greatest freedom of movement. The uniform as now issued to submarines is satisfactory in its general design, but it should be of genuine leather with a detachable woolen lining for the coat, and underneath this, in very cold weather, a woolen suit and heavy underwear should be worn. The glove or mitten could be improved by replacing the stiff gauntlet with pliable leather, which could be strapped around the sleeve at the top of the glove. In bad weather the stiff gauntlet collects enough water to finally leak through around the wrist. The imitation leather uniform recently issued to some of the submarines has shown a tendency to crack and leak after a short time. The gloves of this material are not at all serviceable and when worn aboard the submarine soon become useless.

*U. S. Naval Training Station, Newport, R. I.*—Six cases of cerebro-spinal fever occurred during the year, including two cases admitted to the naval hospital as with diagnosis undetermined.

The first case occurred on April 4, 1917. This patient had been on the station for about one month. Four cases occurred during the month of May, 1917. The infection in these cases was traced to a draft of men received from the Great Lakes Training Station. On November 3 a suspicious case sent to hospital as with "diagnosis undetermined" was reported positive by spinal puncture.

When a case of cerebro-spinal fever occurs at this station the following sanitary procedures are carried out: The infected unit is removed from the shack or dormitory in which it is quartered and placed in strict quarantine. The dormitory is then thoroughly disinfected, left vacant, and aired for one week. The infected unit is inspected frequently by medical officers, and all nasal passages and throats are sprayed with an antiseptic solution three times per day. Quarantine is maintained until all contacts have been pronounced negative by culture.

After careful consideration of the various solutions recommended for throat sprays, the medical officer is of the opinion that chlorazene is the best. Dichloramine-T causes intense irritation of the nasopharyngeal passages and is for this reason unsatisfactory. A solution of 20 per cent argyrol was also used and is considered to be very good.

Six cases of diphtheria occurred during the year, including four cases admitted to the naval hospital as with diagnosis undetermined. Two cases of this disease developed on May 22, 1917, in barracks "B." At this time barracks "B" was very much overcrowded, and the weather was very inclement. The situation was a serious one, as there were no available barracks to transfer men to and thus relieve the congestion in barracks "B."

The following sanitary measures were carried out: Barracks "B" was placed in close quarantine; the throats of the men were inspected twice daily, and all cases with suspicious throats were immediately isolated until cultures could be made. The dormitories were scrubbed and aired thoroughly each day. Particular attention was paid to the sterilization of mess-gear, airing of bedding, and to the cleanliness of the drinking fountains. The measures taken appear to have been effective, as no further cases of the disease developed. This barrack was kept in quarantine for five days after the appearance of the last case. On September 11, 1917, a case sent to the naval hospital as with tonsillitis gave a positive culture for diphtheria.

All contacts were isolated in tents for five days, and the accepted measures of quarantine were carried out. There were no further cases of the disease.

The training station was quarantined against Newport, and all milk and ice-cream was barred from the commissary. Daily throat inspection of the entire personnel was held, and all cases of tonsillitis, pharyngitis, etc., were immediately sent to the naval hospital as possible diphtheria suspects. All barracks were scrubbed and aired daily. About 800 petty officers and other men of the crew drew commuted rations and lived ashore with their families. This was a complication which bade fair to be a serious one, as far as quarantine was concerned. The majority of these men were instructors, hospital corpsmen, and yeomen, and their services were required on the station, where there were no quarters for them. After consultation with the commanding officer the following plan was put into effect: A tent was erected at the causeway, and competent hospital corpsmen were put on watch night and day. All men who lived ashore were inspected daily at the causeway, and their throats were thoroughly swabbed with Loeffler's solution before they were allowed to come on the station. Those men who reported diphtheria as being present in their families, and any men with suspicious throats, were immediately sent to the naval hospital for culture and barred from the station until the culture was reported as negative. The quarantine against the city of Newport, the barring of milk and ice-cream from the training station, together with the other measures taken as mentioned above, appear to have been satisfactory, as no cases of diphtheria developed in the personnel of this training station during the epidemic in Newport. The station was quarantined against Newport until about August 15.

Diphtheria has been a source of continual concern to the medical officer, as it is now endemic in Newport. At present there are no facilities for the pasteurization of milk in Newport, but as far as can be determined a pasteurizing plant will be in operation within the next three months. No milk is served to the recruits and the medical officer has recommended that milk be barred from the commissary until the pasteurizing plant is in operation.

The record of 49 cases of pneumonia is a remarkable one, especially so when it is considered that during the spring and early summer the training station was very much overcrowded and the weather was very inclement and unseasonable. In addition to these conditions the supply of clothing for the men was not adequate and many of the recruits were without heavy underwear, pea-coats, boots, and sweaters.

The incidence of mumps began with the great influx of recruits at the beginning of the war. Mumps has been more of an annoyance than a menace to the health of the personnel of this training station, and there has not been any serious outbreak of this disease during the year.

In November, 1917, a large draft of yeomen and hospital corpsmen was received from the San Francisco training station. They arrived at this station with mumps present among them, and since their arrival the admissions for this condition have shown a decided increase. The practice of transferring infected recruits from one station to another can not be too strongly condemned. Both mumps

and cerebro-spinal fever have been brought to this station by recruits from other training stations where the above-named diseases were prevalent.

There were 412 admissions for measles and 619 for German measles. The station was never entirely free from these infections owing to the constant influx of new recruits. There were two serious outbreaks. The first occurred in May, giving a total of 159 cases. The second began during the latter part of September and continued through the month of October, giving a total of 548 cases. The infected units were put in strict quarantine and overcrowding was reduced as much as possible. Particular attention was paid to the scrubbing and disinfection of barracks and tents, to body inspection, which was held at least twice and frequently three times per day, to airing of bedding, and the cleanliness of drinking fountains. Fortunately the infection was very mild in type, and at least half of the cases were discovered at daily body inspection, as the affected patients, feeling perfectly well, did not report at the sick bay.

About one-half of the cases of gonorrhea admitted were cases discovered at the receiving building at the time of the arrival of the patients on this station. Two cases of syphilis were old cases which were noted by the psychiatrist during the course of his examination of new recruits. Many of the cases of venereal disease admitted were contracted in Fall River, Providence, and other towns in the vicinity of Newport. A considerable number of cases admitting intercourse in Newport stated that they contracted the disease from streetwalkers.

The order forbidding the sale of intoxicating liquor to enlisted men has had a decided effect in reducing the number of cases of venereal disease contracted in Newport.

In connection with the work of the Department of Justice the following data are obtained from each case admitted with venereal disease: (a) Where and when contracted; (b) street and number of house; (c) was the owner of the house aware of the fact that the house was being used for purposes of prostitution? A report in each case is made to the commanding officer, who forwards it to the proper authorities for further action.

The 30,148 recruits received at this station during the year were all examined by a dental surgeon and had dental records attached to their health records. The senior dental surgeon reports that 90 per cent of these recruits had from 1 to 10 carious teeth. Owing to the large amount of work entailed by the preliminary examination of these recruits, it has not been possible to thoroughly fit all men for the service by attending to their carious teeth. As a rule, it has only been possible to do such emergency work as arose from day to day.

A separate building is required for the medical department, including an isolation unit complete as regards toilet facilities, bathrooms, etc., fitted to handle at least 500 men. Plans for such a building for the medical department were submitted to the bureau. It is recommended that the bureau authorize the construction of this building as soon as possible. An isolation unit should be constructed at this station for the proper handling of infected units. At the present time, when a contagious disease appears on this station, it is practically impossible to properly isolate all contacts, as the facili-

ties for messing, toilets, etc., are not arranged so that any one unit can be absolutely isolated from another. Under present conditions there is always some contact between the isolated unit and the other recruits. This occurs either in the toilet or mess hall, and of course militates against the proper enforcement of absolute quarantine. A separate unit composed of at least five shacks, with toilet, wash room, and mess hall complete should be installed at this station.

### THIRD NAVAL DISTRICT.

During the month of May the prevalence of communicable disease diminished among the personnel in this district. Diphtheria, while showing only about one-half the incidence of the disease in April, still heads the list with approximately 100 cases, including those from vessels. This is more than the total number of cases of all other contagious diseases combined, excluding venereal infections.

Approximately 1,200 cases of diphtheria occurred in New York City during May. There were about 100 deaths from this disease among the civil population. The number of cases occurring in the naval personnel in the city is more than 8 per cent of the whole, or, at the same rate of incidence as that prevailing among the civil population, normal for a population of 480,000. This shows, of course, an abnormally high incidence of diphtheria among the naval personnel in this city. It is explainable in part by the crowded living conditions which compel, both by day and night, intimate personal contact and ready exchange of nasal and buccal secretions. The use of common drinking cups, especially in fire rooms, and the insanitary type of drinking fountains frequently supplied are also contributory causes. As an index of the importance of diphtheria in the Navy as a whole, it may be noted that between January 5 and May 11 there were 1,287 deaths from all causes, of which 29, or more than 2¼ per cent, were due to diphtheria.

Wherever diphtheria has occurred the proper procedure has always, so far as known, been adopted by the various medical officers. Their success in controlling the disease has varied with the facilities of the station and the opportunities to segregate, detain, culture, immunize, and reexamine.

*Navy Yard, New York.*—In spite of the enormous increase in work and building operations, the sanitary conditions for the year have been excellent. The average number of officers attached to the yard and station has been 200. They and their families have received medical attention as required and likewise, since May 20, 1917, members of the Naval Reserve Force attached to the yard and the crews of patrol boats coming in here. The average number of reservists treated daily is about 35. The number of cases of all kinds seen daily averages 150. Sixty-one prospective candidates for appointment to the Naval Academy were referred here by Members of Congress for preliminary examination. Seventy physical examinations were made for candidates for skilled labor; 6,226 for unskilled labor. First-aid treatment was given to 5,485 civilian employees working in the navy yard. The greatest number of cases was treated in December, 795; the smallest number in September, 322. There were 16 deaths, as follows:



Heart disease, various types	5
Tuberculosis	1
Drug addiction	1
Blood poisoning	1
Apoplexy	1
Fracture of ribs and laceration of the lung	1
Burns from steam	1
Rupture of internal organ	2
Punctured wound of abdomen	1
Fractured skull	1
Fracture of pelvis and internal injury	1

There were 5 new cases of lead poisoning. At the close of the year 15,000 employees were at work in the yard.

*Receiving ship, New York.*—From January 1 to April 11 the U. S. S. *New Jersey* acted as receiving ship and for that period answered the purpose very well. About the middle of April the work of the receiving ship as a distinct unit began in earnest, following the great activities of the recruiting agencies throughout the country. Only those who were present can appreciate the trying conditions that existed at that time. There were no adequate facilities for taking care of the enormous number of new arrivals, and every available space was commandeered to house the rapidly increasing complement of the receiving ship. Three interned German ships, actually undergoing preparation for use as transports, were taken over and sent here to assist in housing the recruits. The use of these ships for barracks while they were in process of conversion soon proved highly unsatisfactory, but it seemed the only possible step. Fifteen hundred men were quartered on the *Princess Irene* and a medical officer and three hospital corpsmen were assigned to her. The weather at this time was cold and rainy and there was, of course, the morbidity usual under these conditions. Sick call was attended by from 300 to 500 men daily. By the first week in May the *Friederich der Grosse* and soon after the *Kaiser Wilhelm II* were assigned for housing purposes. Not only were these ships in a very bad condition from a sanitary point of view, but a majority of the men placed on board of them were unaccustomed to naval life and had not acquired the personal habits indispensable to health on board ship. The medical officers made daily sanitary inspections and reported their findings to the commanding officer, who did everything in his power to improve the situation. He was greatly handicapped by the want of officers of experience to put in charge of the ships, but the ultimate success of the work at this station was due to the ready cooperation with the medical officers shown by the commanding officer. One of the chief difficulties in the way of establishing sanitary conditions on these ships was the lack of experienced men for sanitary policing. The number of men quartered on them ranged from 4,500 to 6,000. The commissary officer states that at times he messed as many as 7,000 men at one meal. The commissary department was in good hands and the food was always ample and, in the main, of excellent quality. There were occasional cases of diarrhea, due to lack of sufficient means of refrigeration and preservation of meat. It became evident to everyone that the system inaugurated was bad and in August the special barracks built at the City Park, Brooklyn, were opened. As soon as these barracks were occupied a very marked improvement in the condition of the men was apparent and all re-

ports show the superiority of the cantonment over the receiving ship. The barracks at City Park were not sufficiently large, however, and after the German ships had been returned to the yard additional provision had to be made. The *Adirondack*, of the Hudson Navigation Co., was secured to house the men in excess of 3,000, which represented the barracks' capacity. In December it was necessary to secure an additional vessel, and the *C. W. Morse*, similar in type to the *Adirondack*, but of more modern construction, was secured. Systematic instruction of the hospital corps has been carried on at the City Park barracks, and the men have made gratifying progress. The instruction given to hospital corpsmen aboard the receiving ships proper yielded less satisfactory results, owing to the constant shifting of personnel. From the declaration of war to the end of the calendar year 31 newly commissioned medical officers reported at the receiving ship for duty and instruction. Classes were conducted both morning and afternoon for the instruction of these officers in clerical procedures, preparation of forms, hygiene and sanitation, military duties, etc. It is believed that the time and labor expended in this instruction were of great value. The contagious cases at the receiving ship for the year were as follows: Mumps, 190; measles, 54; German measles, 52; diphtheria, 24; chicken pox, 4; scarlet fever, 1. Early in May an isolation camp was established on a plot of ground not far from the receiving ship. It was divided into two groups, one for suspects and one for developed cases of contagious disease. All men were examined twice a day for suspects and the positives were assigned to the proper camps. These examinations often covered as high as three or four thousand men a day, and by means of them it was possible gradually to reduce the number of contagious cases. The work done in the camp was large, as contagious cases from the vicinity, including those from the aforementioned ships in Hoboken, N. J., from the Erie Basin and neighboring waters passed through it in process of transfer to contagious hospitals in New York or Brooklyn.

*Swinburne Island, N. Y.*—This island, in the harbor of New York, was offered to the Navy by the health officer of the port, and by your order of February 12, 1918, it was taken over by the naval authorities for use of the naval patrol of that section, its hospital facilities being designated as a part of the United States Naval Hospital, New York.

*Ammunition Depot, Iona Island, N. Y.*—The total complement of the station is now over 500, consisting of 7 officers, 32 sailors, 105 marines, and about 500 workmen from near-by towns who are employed here daily.

The T N T, or mine-loading plant, is a small frame building consisting of a lower filling room and an upper melting room. The upper room was built during the past year as an extension to the lower room on a level 12 feet above, and in this were installed two large and four small T N T melting vats, thus separating the melting from the filling process, as these pots were formerly in the lower room. At present it is intended to install two additional melting pots in the upper room, making a total of eight. These melting pots have at present no hoods to withdraw vapors, but recommendations for these have been approved and the hoods will be installed. The

outlets into the lower room from the melting pots above are protected with suitable hoods, and by the use of wide funnels in careful hands very little of the melted T N T overflows or is exposed. So far as possible conditions and methods here have been in conformance with the copy of "Rules for use of trinitrotoluene," promulgated by the minister of munitions in pursuance of Regulation 35 A. A. of the Defense of the Realm (Consolidation) Regulations of 1914 of Great Britain, accompanying circular letter No. 346, dated August 1, 1917, from the Bureau of Ordnance, Washington, D. C. About 24 men are employed in the T N T process plant, and only one of them has followed the medical officer's recommendations to wear respirators over nose and mouth. Most of the men protect their hands with cotton or leather gloves, and it is suggested that rubber gloves would be a much better protection. Shifts have been arranged so that during cold weather the men are placed at other work at least every two weeks, and during summer after four to seven days in the mine plant. At present, owing to a remodeling of the former lunch and locker room for a munition house, there is no allotted place to be used for washroom, lunch, and locker room, but a new brick building, 30 by 20 feet, is in process of rapid construction, and will be provided with adequate locker room for changing and keeping clothes, and provided with wash basins and shower bath and benches to be used at lunch time.

The dimensions of the sleeping quarters permit of more than 5 feet between the bunks, each of which is provided with a clothes locker. There is ample window space and at night electricity is used for lighting. Heating is by the hot-water system, with the latest approved direct-indirect method for obtaining warm pure air. The ventilating process is thus ably cared for by intake openings under the radiators, the outlet vents being in the ceiling, from which the vitiated air is conveyed through the roof by five 24-inch patent automatic suction ventilators.

Three hundred and sixty workmen have received first-aid treatment, and 22 cases have been cared for in the sick bay until discharged to duty, since January, 1917.

#### FOURTH NAVAL DISTRICT.

*Navy Yard, Philadelphia, Pa.*—Well kept restaurants, providing wholesome food, well served, have been established in the yard for the employees and a thorough supervision has been established over all establishments in the city serving food in the yard. The permits of many have been revoked owing to insanitary conditions in the establishments, and every effort has been made to guarantee the purity and wholesomeness of the luncheons served to yard employees from lunch wagons and other sources.

A new disinfecting plant has been constructed alongside the old one and the yard is now prepared to disinfect for the largest of vessels at short notice, and is so doing daily.

There were treated at the yard dispensary during the year 6,187 accident cases among the employees. There were 8 deaths, as follows: 1 cerebral hemorrhage, 1 fracture of skull, 1 lightning stroke, 4 by

drowning, 1 heat stroke. The average number of men out on account of injury was 23 daily.

During the year 3,476 applicants for labor were examined, and of these 371 were rejected. Physical ratings were given on certificates of civilian physicians to the number of 11,873; of these 376 were rejections. In order to expedite work and procure more workmen, a medical officer is kept on duty at the Labor Board Office to examine applicants for work at all times. This also saves the workmen the fee usually given a civilian examiner.

The new dispensary building for the yard is under construction, but work has been very much delayed on account of the severe weather. It is even now probable that, in view of the time this building was designed, extensions may be necessary. It is strongly urged that when the new dispensary is ready for occupancy the old building still be retained by the medical department as additional space for examining rooms, etc., for yard workmen.

The new naval hospital in the yard was commissioned in October and is now carrying an average of 200 patients. The naval hospital, Philadelphia, is now used largely for contagious cases and is also taxed to the utmost.

*U. S. Marine Barracks, Philadelphia, Pa.*—The post medical officer recommends that a distinct building be constructed for the use of the medical department. The enlargement of the post at the navy yard, Philadelphia, has been necessary in the past few years, to meet the increase in the personnel of the Marine Corps, and to keep pace with added activities along all lines of military work. The selection of the Philadelphia yard for fixed and advance base purposes has brought about increased activities, heretofore unknown. It has always been keenly felt that more suitable accommodations for the reception of the sick and injured were necessary.

The post medical officer recommends that a permanent post dispensary and sick quarters be built, large enough to accommodate 30 beds. This building should be of two stories elevation and contain, in addition to the space for beds, a dispensary, operating room, office, laboratory, an examining room, and an eye, ear, nose and throat room, together with a dental office, necessary toilets, baths, storerooms, and quarters. The design for this building would, of necessity, differ from a regular yard dispensary, as it contemplates the housing of such patients as are not ill enough to transfer from the post.

The medical officer has already recommended to the bureau the desirability of having under training at this post, at all times, a unit of hospital corpsmen for expeditionary service. The men can be equipped with marine uniforms and trained along lines applicable to their special service. The medical officer has reason to believe that the bureau views this recommendation with approval.

*Receiving ship and training camp, navy yard, Philadelphia, Pa.*—All drafts leaving the training camp are inspected at this office for the presence of venereal or contagious diseases. This procedure is carried out at the receiving-ship offices instead of at the camp because the detail office, pay office, and commanding officer's office for both the training camp and the receiving ship are situated in this building, and as a result men passing out on drafts can be handled more ex-

peditionously. When men are admitted from the sick list into the camp loose-leaf records are written and such records are forwarded with the morning reports of sick to the receiving-ship offices, where they are filed in the health records and entry is made in the abstract.

At full capacity of the camp—i. e., 5,000 men—cubic air space was figured per man for barrack building containing the largest number of men (92), and it was found that each man had 271.6 cubic feet of air space. This is a minimum figure for cubic air space, as the average number of men in each barrack building was 84. As the cold weather came on in the autumn the commanding officer issued an order that a certain number of windows must be kept open, or partially open, in each barrack to secure proper ventilation, emphasizing the fact that the windows should be kept open especially at night, and that a greater number of windows partially open was better than a few windows all the way open. He also issued an order that inspection should be made of all the barracks at stated times, both during the day and night, to determine the ventilation and correct any insanitary conditions found. All barrack buildings have special ventilation apparatus through the roof designed on a principle suggested by Captain J. D. Gatewood, Medical Corps, United States Navy.

The camp was designed to accommodate 5,000 men, but since its establishment three of the barrack buildings have been set aside as dispensaries, two buildings as schools, and one building for armed guard offices. Thus it will be seen that the original capacity of the camp is somewhat reduced. The total number of barrack buildings, excluding mess halls, galleys, and schools, is 59. Figuring a minimum cubic air space per man of 400 cubic feet and making allowance for a few men who are quartered in the mess halls and dispensary buildings, the total capacity of the camp should be 4,000 and of each barrack building 63 men.

It is deemed especially important that the camp should never be overcrowded, in view of the fact that the most damaging infectious diseases in the present war are those which are transmitted by the so-called "droplet infection"—i. e., by the close contact of man to man in the transference of secretions from the nose and throat by coughing, sneezing, or breathing.

On July 26, 1917, a telegram was received from the training station at Great Lakes, Ill., stating that in a draft of 504 men transferred from that station to this there were a number of scarlet fever contacts. When this draft arrived at this station the men were marched into the open ground to the south of the training-camp buildings and examined by medical officers. All suspicious cases were isolated and the draft put in a detention camp of tents established that same evening. On July 27 one of the men separated from the main draft the evening before developed scarlet fever and was transferred to the hospital.

On August 8, 1917, one other case of scarlet fever developed and was transferred to the naval hospital. No further cases of scarlet fever developed in this draft, and they were released from quarantine on the expiration of the maximum incubation period for scarlet fever.

October 8, 1917, in a draft of 67 men received from the U. S. S. *Wisconsin*, one case having symptoms very suggestive of cerebro-

spinal meningitis was discovered and transferred immediately to the hospital. The contacts of the entire draft were placed in isolation. The next day the diagnosis of cerebro-spinal meningitis was confirmed at the naval hospital. Regular procedures in regard to the inspection of the men of this draft daily and airing of bedding were carried out. In addition to this, cultures were made from the posterior pharynx and examined by the chief bacteriologist of the health department of the city of Philadelphia, Dr. C. Y. White. "West" tubes and appropriate culture media and facilities for the proper taking of cultures were furnished by Dr. White, and the procedure of taking cultures carefully carried out. The cultures were examined by Dr. White and reports submitted. Before these contacts were released from isolation the laboratory of the League Island hospital was in a position to do a part of the culture work, and this was done by Dr. Lewis on the authorization of Captain A. W. Dunbar, Medical Corps, United States Navy. Dr. White, the city bacteriologist, was most courteous and painstaking in assisting in the work of discovering carriers at this time. Three carriers were discovered and these men transferred to the hospital. No subsequent cases of meningitis developed and the quarantine on this draft was removed as soon as all throat cultures were negative.

On the arrival of a draft of 135 men, October 21, 1917, from the U. S. S. *Wisconsin*, one case of scarlet fever was discovered. This draft was isolated in the permanent detention camp and no subsequent cases developed.

On November 18, 1917, one of the hospital corpsmen in the camp dispensary developed diphtheria. It would seem probable that this infection took place from cases of diphtheria in the city of Philadelphia. Throat cultures of all hospital corpsmen and patients in the dispensary at this time were made and examined at the laboratory of the League Island hospital, and these cultures were all negative for Klebs-Löffler. The Schick test for diphtheria was also made on all hospital corpsmen and patients in the dispensary buildings. Toxin and the technic for its administration were obtained from Dr. John A. Kolmer, of the University of Pennsylvania. The Schick test in every case was negative. No further cases of diphtheria developed. Quarantine on the building was lifted as soon as it was discovered that the Schick tests were negative and the throat cultures negative.

It will be seen from the above history of infections that at all times the main receiving ship camp has been kept clear of infectious diseases, and that no cases developed in the main camp except the one case of chicken pox and the one case of measles in barracks No. 200 and the case of diphtheria in the dispensary building.

It is believed that the careful examination of incoming drafts and the immediate isolation of contacts have been of the greatest value in preventing the spread of infections, and in this manner keeping the main camp clear and in condition so that the routine transfers can be made from the training camp and receiving ship without the danger of carrying infectious diseases to new stations.

It is recommended that when men are transferred from other stations or cruising ships to this station the medical officer of the receiving ship be notified by telegraph if there are any contacts with cases of infectious disease in the draft. This seems very necessary

in order that this station may be prepared to immediately carry out isolation of contacts so that infections may not be spread to the general camp.

#### SIXTH NAVAL DISTRICT.

There are 8 section bases, and the medical officer has an office of two rooms, one used as a dispensary and the other as an examining room, and each medical officer obtains medical supplies on requisition, approved by the medical aide. The work of these medical officers consists of examining recruits and the treatment of the sick on patrol boats and in the personnel of the division. Arrangements are made with civilian hospitals for the treatment of cases requiring hospital attention. Where any hospital of the U. S. Public Health Service is available, this is utilized. Cases which are able to travel and which may necessitate considerable hospital care are transferred to the United States Naval Hospital, Charleston, S. C. A hospital ship is needed for this work, and this recommendation has been approved.

At each of these section bases a survey of the town has been made, and particular attention is called to the following points:

General sanitary conditions of towns.

Buildings which might be utilized.

Capacity of civilian hospitals to accommodate sick and wounded in case of emergency.

Automobiles and trucks which may be available in case of emergency for transporting sick and wounded.

Hotels and restaurants which would volunteer for the feeding of a considerable number of sick in the case of an emergency.

*Charleston Section.*—There have been during the winter a good many cases of measles in the city of Charleston. During the month of December, 1917, the weather was very bad and there was also an epidemic of influenza. There also occurred among the enlisted personnel of the Charleston section base one case of meningitis, which case recovered.

*Jacksonville Section.*—This section base is located in a progressive little city of about 75,000 people, with excellent sanitary conditions. The city is located on the St. John's River, about 25 miles from the ocean, and large vessels can dock at the city. The sewerage system of the city is fairly sanitary. The use of a septic tank would be an improvement. Two new incinerators are to be built to dispose of the garbage. The water supply is from artesian wells and is good.

*General sanitary features of the sixth naval district.*—All of the cities in which the section bases are located have good civilian hospitals, with the exception of Georgetown, S. C. In two of these cities marine hospitals are available in addition to the civilian hospitals for the care of sick and wounded.

Malaria is the most prevalent disease of the Southeastern States, and during a long season the *Anopheles* mosquito is active. The screening of patrol boats and all places where men have sleeping and living quarters is an important matter in the prevention of disease, and all of the patrol boats in the section should be screened. Vaccination and antityphoid inoculation has been carried out in regard to all officers and enlisted men in this district. An im-

portant feature of the work in this district has been the training of a considerable number of Reserve Force medical officers and hospital corpsmen. Nearly all of the medical officers in the Reserve Force have been given a short course in an officer's school. Instruction has been given in routine work of the medical department, in the customs of the service, and the general duties of the medical officer both ashore and afloat.

*Navy Yard, Charleston, S. C.*—The effects of the sudden large increase in personnel connected with our entry into the war were seriously felt here. The dispensary building as it then existed was inadequate and a special appropriation of \$12,000 was obtained for increasing the size of the building and large tents were utilized while the work was going on. An emergency hospital of 250 beds was begun at once and was partially available by August 1, 1917. There is now available at this yard a ward of 12 beds and another of 20 beds and additional space is available on screened verandas. The new wing contains a laboratory, a waiting room, dental office, medical storeroom, galley, mess hall, provision storeroom, heads and showers, with a recreation room in the basement. The hospital corps and civilian employees are quartered in the old building. A disinfecting plant has been constructed. An incinerator for the yard has been constructed and is in operation. A conspicuous feature of the work of the medical department has been the systematic instruction and training of new members of the medical corps. There have been performed at the dispensary 97 major and 106 minor operations. Every effort has been made to reduce the liability of civilian employees to accidental injury. They have been urged to wear goggles and gloves and to anoint their faces with vaseline whenever exposed to the danger of eye injuries or burns. By careful attention to ventilation of workshops, by inspections and instructions every effort has been made to prevent the spread of epidemic diseases among civilian employees. In a general way the civilian employees of the yard are a menace to the health of the Navy personnel, owing to the unsanitary conditions prevalent in the vicinity. In September, 1917, a food inspector was detailed to the yard by the Department of Agriculture. His services have been of great value to the station.

*Training Camp, Charleston, S. C.*—The site occupied by the training camp is an elevated plateau lying in, and adjacent to, the southern portion of the western boundary of the navy yard. It is covered with a growth of large pine trees which add greatly to the appearance of the camp and the health of the men stationed there by providing shade and aiding to keep the ground dry. The soil is a sandy loam; the subsoil contains clay, but, on account of the elevation, the depth of the top soil and the sand in the subsoil, mud is an unknown quantity.

The camp buildings occupy an area of about 22 acres. They are divided into three main groups. The buildings of the first regiment together with the administration building, officers' quarters, and the main sick bay lie inside the navy yard proper. The camp is divided into five regiments and will accommodate about 5,000 men. Common to each regiment are the following buildings: A combined mess hall and galley, heads and washhouses, barber shop, regimental headquarters, and 40 bungalows. The mess halls and galleys are built in one unit for each regiment and have accommodation for



1,000 men. The galleys are equipped with four sections of Navy standard ranges, six steam-jacketed kettles, and two coffee urns. Mechanical dishwashers have been requisitioned and will be installed as soon as they are received. Each galley is provided with an ice box of adequate size and two other rooms for storage. The heads and washhouses for each regiment are combined in one building, 181 feet 6 inches by 27 feet, having a cement floor. Ventilation is by means of 2-foot screened sections along eave line around entire building.

The bungalows are built of lumber, covered by tar paper and have roofs of the same material; they are unceiled; the inside dimensions are 16 by 30 by 10 feet and they have  $2\frac{1}{2}$  feet gable space. They are designed to accommodate 25 men each and to allow 240 cubic feet of air space for each man. Heat is provided by small stoves designed to burn either wood or coal; these are set in sand boxes to prevent danger from fire. The men sleep in hammocks, which are swung from hooks in beams about 7 feet above the floor. All buildings are constructed on brick piers about 2 feet above the ground level to prevent floor dampness. The mess halls are not glazed. They have two 2-foot screen sections along the sides and ends which can be closed by solid wooden shutters. The bungalows are similarly fitted up along the sides and have in addition ventilators approximately 18 by 24 inches extending up into the gable spaces in each end.

The quarantine camp, west of the Seaboard Air Line Railroad, is at present composed of tents having wooden floors, accommodating two men each, who sleep in cots. One hundred tent floors have been built. It is provided with a 4-section washhouse and head building similar in interior arrangements to those used in camp. It is recommended that the tents be replaced by frame buildings at the earliest opportunity for the reason that the tents will be difficult to heat during cold weather.

There are three large sick bays in the camp. These buildings are ceiled and glazed and will be heated by steam and supplied with hot water. They are adequately supplied with toilet and bathing facilities and have ample sleeping accommodations for their personnel. An incinerator is now being installed. The main sick bay contains the offices for two chaplains.

All food supplies for use of the camp are inspected by one of the medical officers and an inspector from the Bureau of Animal Industry, Agricultural Department, especially appointed for this purpose. This inspection takes place at the first regiment galley. Supplies are redistributed from this point. After acceptance all perishable food is removed to the ice houses in the mess halls and is kept there until used. When practical all perishable food is used within 24 hours of its acceptance.

The bakeries, butcher shops, and markets from which supplies are purchased are first subject to inspection by the expert from the Bureau of Animal Industry, and their sanitary condition must be satisfactory before they can receive any orders for supplies from the camp. All meals are inspected by the medical officer of the day before being served, and the sanitary officer makes frequent inspection of mess halls and galleys. Food is prepared by enlisted cooks

who are receiving instruction in methods of preparation by the inspector from the Bureau of Animal Industry.

Taken as a whole the camp has been unusually free from diseases of all kinds. The main factors contributing to this result are the excellence of the camp site, the good climatic conditions, the facilities afforded the medical corps, together with the hearty cooperation of the line officers in charge, and the care taken of the men.

During the period covered by the report two drafts of men have been received which have affected the report considerably; the first from New Orleans received September 7, in which were found 42 cases of venereal disease; the other has come in three divisions from the Great Lakes training camp. This draft reported with one case of cerebro-spinal fever and several cases of mumps and measles; there were as well many cases of influenza and bronchitis. The principal feature in regard to this draft lies in the fact that, just prior to its reception, contagious disease had been practically eradicated from this camp. One of the men in this draft died a few hours after admission and transfer to the United States Naval Hospital, Charleston, S. C.; cause undetermined. There have been no other deaths at this camp.

*Marine Barracks, Paris Island, S. C.*—The following are the chief improvements which have been made during the year:

**Main Barracks:** All men except from 700 to 1,000 have been moved to the cantonment (training camp) for quarters and messing. This relieves the congestion at the main barracks. Only about 150 men are now quartered in tents. The old insanitary, unsatisfactory mess hall has been entirely renovated with new impervious decks, new kitchens and new equipment throughout, so that this institution is now one of the show places of the station. The entire equipment appears to be all that could be desired. A new toilet and wash house has been built; this has 50 toilets, wash bowls and about 25 showers, with covered space outside for scrubbing clothes. A new swill house with track and car to take swill to end of a small dock where part of it is taken away by colored men. A new addition to power plant is about to be completed. This will furnish ample electric light and power and steam heat for all parts of the main barracks. A new bakery with capacity of 4,000 loaves of bread daily is in satisfactory operation.

The water supply has not been materially changed as yet. Five new wells (about 100 feet) were sunk and water is pumped to all parts of the station, including training camp and quarantine station. There is now an ample supply of water, but it is still too salty to be available for drinking purposes. Plans are now under way for obtaining an ample supply of fresh water for the needs of the station. The Marine Corps has authorized the necessary expenditure and appears determined, if possible, to provide fresh water here and eliminate the water barge and its concomitant dangers and expense. A water expert has been called in to investigate conditions and his recommendations are being carried out as far as possible. It is to be hoped that these efforts will be crowned with success.

**Cantonment (training camp):** In general this camp is quite satisfactory except during the extremes of hot and cold weather. The buildings are of rough construction and in cold weather are not

properly ventilated and they do not have the proper amount of floor space per man for the number quartered in the barracks.

**Quarantine station:** This part of the camp lies about 1 mile to the south of the main barracks on a small point between a creek and the Beaufort River. Here are located a receiving office, an examining room, and sick bay, and separate barrack quarters for applicants and enlisted recruits. For these two units there are five mess halls. The capacity of this place is about 800 men, and the limits of the reservation are such that the capacity can not be increased without occupying adjacent land which does not belong to the Government.

It can readily be seen that this "quarantine station" does not always answer its purpose. Two or three times during the past year it has been necessary to carry out quarantine elsewhere, and this station became merely a receiving depot. Recently about 1,500 recruits were enlisted here in about two weeks' time, and the "quarantine station" ceased to exist as such. The limited area of this place and the importance of proper segregation of new recruits from a training camp make it almost imperative that additional space should be acquired adjoining this quarantine station in order that it may be expanded as the needs require. Such space is available, and it is recommended that condemnation proceedings be adopted, if necessary, to acquire what is needed.

At this station a quarantine period of two weeks has been a matter of routine. When space was not available to complete this period at the quarantine station, the period has been completed elsewhere with more or less difficulty and discomfort for the men. In summer it is feasible to have a quarantine camp in tents at the maneuver grounds (5 miles away), but in winter with concomitant cold and rain this is not desirable. The distance to the maneuver grounds greatly embarrasses the Quartermaster Department in the transportation of stores, equipment, etc., and medical supervision is maintained with difficulty.

No psychiatrist has been on duty here and the examinations have been made by the regular medical officers at the examining room, quarantine station. Such tests as have been made were in the form of conversation with the applicant and, in some cases, some modification of the Binet-Simon test has been utilized. Between January 1, 1917, and January 1, 1918, 15,699 applicants were examined by medical officers; of these 394 were rejected for various defects. Ten applicants were rejected on account of mental inferiority or insanity, which was more or less evident. A large percentage of these rejections were for defects which could have been determined by careful examination at the recruiting station. In many cases the applicant stated that no examination for hernias, varicoceles, hemorrhoids, otitis, or deafness had been made. Many reports along this line have previously been made to the bureau.

It is well known to the examining officers that a certain percentage of cases of feeble-mindedness, constitutional inferiority, and potential dementias slip through. A few of these are eliminated by later examinations made upon request of company commanders or upon receipt of information from parents, psychiatrists, etc., who have known the applicant prior to coming here.

One severe epidemic of measles developed at the station early in the year and continued until July. It was impossible to limit the spread of this disease on account of the congested condition of the station and lack of proper facilities for messing and toilet. There were no deaths from this disease, although several cases developed broncho-pneumonia.

Three sporadic cases of cerebro-spinal meningitis developed during the year with one death. The other two cases fully recovered and went to duty. No diphtheria has appeared in this vicinity except one case in a negro boy. This case was treated and recovered.

No scarlet fever appeared until November. Since then there has been one other case. Both cases appear to have been sporadic, since no contagion could be traced.

On the station and at the hospital there have been seven deaths, as follows: Pneumonia, 2; meningitis, 1; appendicitis, acute, 1; septicemia, 1; dysentery, entamebic, 1; dilatation, acute cardiac, 1.

*Sanitary inspection, Section Base, Jacksonville, Fla.*—There is undoubtedly a marked prevalence of venereal diseases in the city, and an active campaign against these diseases is being carried on. Contagion is acquired through clandestine prostitutes in the form of streetwalkers, roomers, etc. The Fosdick Commission has appropriated \$7,500 and the United States Public Health Service is conducting two free clinics for treatment, given to all who apply. Plain-clothes men are detailed to look out for streetwalkers, and only a very limited number of the soldiers in camps in the vicinity are permitted to come into the city. The medical officer of the station has supplied the personnel, numbering about 115, with the naval pamphlets on the subject of venereal diseases, and the large posters will be posted in the section warehouse where the men congregated. He is also giving talks on the subject to the men. Three cases of venereal disease were found among the personnel of the station last month.

A campaign is now being carried on by the city health officer to obtain better sanitary conditions in the restaurants and shops selling soft drinks, ice-cream, etc., in the city, and all employees will be given antityphoid inoculations immediately. The employees of the shipyards are also being given antityphoid inoculations.

#### SEVENTH NAVAL DISTRICT.

*Naval Station, Key West, Fla.*—Health conditions have been excellent throughout the year, the percentage of sick being 2.9, which is about the average for the last few years, though the personnel has trebled. During the year 412 cases of sickness were treated, with but 1 death. The training camp under the jurisdiction of the naval station has a capacity of 1,000. The barracks are one-story frame structures accommodating 75 men each, with separate mess halls and galley. The buildings are very close to each other and the area occupied by them is congested. Sanitary conditions of the town leave much to be desired and efforts have been made to cooperate with local authorities in correcting defects.

#### EIGHTH NAVAL DISTRICT.

*U. S. Naval Air Station, Pensacola, Fla.*—The station has been remarkably fortunate, and with the exception of a few scattering

cases of measles and mumps no epidemic conditions have so far arisen. Nevertheless, the danger still exists and, if the complement of the station is to be maintained as at present, immediate steps should be taken to construct, without delay, additional barracks and toilet facilities.

The present cantonment was erected from departmental designs and was not suited for local climatic conditions. This, however, has been corrected by raising the monitors, increasing the window space, and increasing the length of each building, but even with this the allotted air space recommended by the Bureau of Medicine and Surgery is too small.

In the new buildings steam heat is supplied. As recommended in previous reports, this should be extended to all buildings on the station, as at present the method of heating quarters and office buildings by open fires and stoves constitutes a serious fire menace, besides being expensive. The impression seems to prevail that, as this station is located in Florida, the question of heating is of minor importance, but as a matter of actual fact, for four months of the year at least, and for a possible two months additional, it is necessary to keep fires burning constantly. This method of heating is quite unsatisfactory, as it does not produce an even temperature, requires constant care by many hands, and as stated before is expensive, a point which is not consistent with the Government's program of economy.

The station has been fortunate in the matter of epidemics. During the month of July the U. S. S. *Huntington* arrived with about 85 cases of measles and mumps. The weather was mild and a camp was established to care for these conditions. Incidentally a general epidemic of bronchitis and influenza existed, so a separate camp was established for all cases suffering with any bronchial affection. This relieved the overcrowded conditions aboard this ship and permitted a thorough fumigation, and within a short time the epidemic conditions disappeared and the station escaped contamination. During the month of December, however, with the heavy influx of recruits from all over the country, the station was not quite so fortunate and there now exists a limited epidemic of these two conditions, which is likely to persist as long as the station is overcrowded and recruits are received without detention. The question of a detention camp has been considered, but no available means exist for maintaining same, and, if the means were at hand, the routine of the station would not permit, as this station is for intensive training purposes and many are transferred for foreign service who have been here less than one month.

The new naval hospital opened on December 26, 1917, relieved the dispensary of the care of most patients, but a number of minor ailments are still cared for at the dispensary.

Lieutenant C. J. Brown, Medical Corps, United States Navy, has been detailed as examining officer, and, in addition to recruiting and the examination of civil employees, he has supervision of the examination of aviators. These examinations are conducted on the lines laid down by the Bureau of Medicine and Surgery, with the addition of certain tests which have been devised through experience at this station. After a year and a half of association with aviation duty,

it is believed that an aviator need not be a superman; any ordinary, healthy, normal individual may qualify physically and psychically as far as can at present be determined, but the real test comes under actual flying conditions, and elimination must be made by the actual instructors. The much advertised Bárány test has been in use on this station since November, 1916, but no practical value can be assigned to it. A much more simple test for equilibrium is the use of a 3-inch plank raised 2 feet from the floor, which candidates are required to walk blindfolded.

The sanitary conditions of Warrington and Woolsey, both located on the reservation, with a combined population of approximately 1,500, remain open to question. As mentioned in previous reports these towns are drained by surface drains, have sealed privies, poor roads, no lights, and the majority of the houses are mere shacks, built of rough boards. The question of installing a sewerage system and underground drains has been discussed, but up to the present time no appropriation has been made. This condition constitutes the greatest menace to the station and should be corrected without delay. Repeated efforts have been made to have the citizens of these towns cooperate in maintaining a healthy community, but, as they are not subject to tax, no results have been obtained in this direction. They seem to fear the possibility that the station may close down at any time and are not disposed to go to any expense. They further feel that since most of them are employees of the Government and living on Government property such work should be undertaken by the Government, and the probabilities are that, if the work is ever done, it will have to be done at Government expense.

Industrial conditions at this station are limited to seaplane repairs and construction and the manufacture of gas for balloons. There has recently been installed a modern plant for the manufacture of hydrogen gas for balloons, which apparently has all necessary safeguards, and stringent orders are in force in regard to the filling of oxygen and hydrogen tanks. The "doping" of planes is done at present in a compartment of the joiner shop, and employees are frequently cautioned about the necessity of abundant ventilation. There is now under construction a separate building for this work, which will be completed within a few months, and special attention will be paid to ventilation. So far only one very mild case of tetrachlorethane poisoning has developed.

*U. S. Naval Station, New Orleans, La.*—The medical activities of this station have been expanded. It has been found necessary to occupy additional quarters near the receiving ship. Building No. 1, a small building about 25 feet square, was turned over to the medical department and here has been established a room for the physical examination of arriving recruits and for other purposes, a first-aid department for yard employees, and a record room for yard employees, and for the health records of the personnel of the station and of the eighth naval district. In building No. 10 (receiving ship) an office has been opened for morning sick call and for the treatment of venereal diseases. In addition to these two offices a medical officer is detailed to make sick call at the marine barracks. It has been found necessary to accommodate the dental officers at the yard dispensary, where two officers and two outfits are constantly employed.

(a) Morbidity, contagious diseases: .	
Mumps-----	91
Measles-----	22
German measles-----	50
(b) Mortality, 2:	
Pneumonia, lobar-----	1
Tuberculosis, acute pneumonic-----	1
(c) Percentage of daily sick-----	2. 4739+
(d) Typhoid prophylaxis completed during the year-----	2, 446
(e) Total number of vaccinations during the year-----	2, 307
(f) Yard employees vaccinated during year-----	1, 308

Civilian employees. Average number working, 1,081. First-aid treatment has been efficient, results have been good, the total incapacitations for the year being 176. Working conditions have been closely watched, and sanitation of working quarters has steadily improved.

Barracks are overcrowded. This condition has been made the subject of separate reports, and plans have been drawn up and recommended by the public works officer which will partially relieve this condition. Saturday bunks, either of wood or iron, are a mistake. It is believed that the use of hammocks or movable beds or cots, which can be taken outside and thoroughly aired and sunned, is the only method of furnishing these barracks that should be considered. Bathing facilities are good, shower baths being sufficient in number, well constructed, well drained, and kept clean at all times, yet no hot-water supply has been installed, which is a serious defect, particularly in winter time. The contract for furnishing hot water for bathing purposes has been let, but fulfillment has been delayed on account of a strike in the contractor's establishment. The marine barracks are well lighted and heated, have good ventilation, good water and sewage facilities, and the sanitary condition of the same has been good. The eradication of all vermin, pediculi especially, has been pushed, yet a room for fumigation and disinfection of all bedding and clothing is needed.

The training station at West End was commissioned November 24, 1917. It is located about 500 yards from the shore of Lake Pontchartrain and is immediately flanked on the opposite side by a stagnant blind extension of the lake.

The buildings are: One administration building, one kitchen and dining room combined; two barracks; one combination toilet, bathroom, and laundry room.

The administration building is adequate. A first-aid station has been installed in this building. The kitchen and dining-room building is 40 feet wide by 149 feet long. The kitchen is well arranged except that there is no provision for boiling or otherwise sterilizing the dishes. The dining room will accommodate approximately 340 persons. The barracks are 126 feet long by 20 feet wide by 10 feet high in the clear and unceiled. These buildings were fitted with four rows of superimposed bunks. This provides bunks of this type for 112 men, and including the 4 petty officers accommodated in the small rooms at the end of the building, makes a total complement of 116 persons in each building. Under this arrangement the floor space per man is 21.4 square feet, the air space is 285 cubic feet, including the attic space.

Prior to the beginning of building operations on these barracks the blue prints were procured by the medical department and the poor arrangement of bunks and the overcrowded condition indicated in the preceding paragraph brought to the attention of the commandant and public works officer. Recently, following representations to the Bureau of Medicine and Surgery, the Bureau of Yards and Docks ordered alterations to conform with the sanitary instructions issued by the Bureau of Medicine and Surgery. The revised plan submitted by the public works officer contemplates a rearrangement of the present bunks to provide for a complement of 76 men, the bunks to be superimposed, and single instead of double or twin, and to extend crosswise from one side only of the building. This provides for 450 cubic feet of air space and 35 square feet of floor space.

*United States Naval Training Camp, Gulfport, Miss.*—The grounds of this station are the same as those originally selected for the Mississippi Centennial Exposition. They are naturally considered as divided into two parts, one lying between the Louisville & Nashville Railroad and the Gulf of Mexico, and the other north of that railroad. The first section includes about 57 acres, while the other contains about 90 acres. This makes a total of about 147 acres in the whole tract. The section (57 acres) south of the railroad fronts on the Gulf of Mexico, along which run the beach boulevard and the track of the Gulfport & Mississippi Coast Traction Co., both connecting the city of Gulfport with the larger municipality of Biloxi. The distance between those cities is nearly 14 miles. The beach boulevard and the electric road have been subjected repeatedly to the effects of tropical storms. These storms, when the center passes to the westward, are said to cause high tides, perhaps 9 feet, and tend to greatly injure the roads which are along the beach. But the location of the grounds close to the gulf, upon which they actually front, makes the conditions in warm months much more conducive to comfort, as there are regular land and sea breezes.

A fair conception of the climate here in winter is important in relation to a camp because it declares the necessity for heating camp buildings during that period, for installation of water pipes with a view to prevention of freezing, and for providing personnel with full supply of clothing and bedding. In December the thermometer was as low at one time as 17 F. Many water pipes were broken and, apart from such low temperature, there were a number of damp, cold days that would tend to cause sickness in naval personnel. These remarks are made partly to abolish any idea that may exist in regard to the equability of climate in a location so far south.

There were 1,529 cases of malaria in Harrison County during the year 1917, and of these 591 were assigned to the city of Gulfport. Harrison County has a population of about 38,000 and Gulfport little more than 6,000, and it seems only fair to assume that a very large number of malarial cases are never made a matter of record, patients treating themselves.

#### NINTH, TENTH, AND ELEVENTH NAVAL DISTRICTS.

*Sanitary Report for 9th, 10th and 11th Naval Districts.*—At the present time the population of the Great Lakes Station averages above 30,000 men. A great many of these are housed in tents, but the barracks nevertheless are crowded. No untoward effects are



noted on this account and it is believed that none will develop at this season of the year. The overcrowding is offset by the mild weather, free and ample ventilation of barracks, nonexposure of the men, and the greater number of hours spent in the open. This explains the difference in disease incidence during the winter and summer and points to the necessity of extra care and provision amid cold, damp, and changeable weather conditions, as well as the necessity of reducing the complement at such a time, unless the specified floor area of 50 square feet per man can be maintained. In view of last winter's experience, especially during December, it would seem wise to make every effort to do all the recruiting possible in the summer time so that the men will not have to undergo the change during respiratory-disease-producing weather.

There is some need, especially in summer, for extra-cantonment sanitation, and the sanitation officer has visited and inspected all the important food and drink establishments in the near-by towns outside of Chicago. Willingness to cooperate has been found in every case and sanitary recommendations have been accepted. All soft-drink and ice-cream stands have promised to give sailors individual service in the form of paper cups and dishes. To make this more effective, it is believed that an order should be issued prohibiting men from accepting any other kind of service. This would indirectly help the civilian population by creating a desire among them for these sanitary improvements. An order of this kind, if given some publicity, would be an excellent lesson in sanitation to both civilians and enlisted men. The district surrounding Great Lakes has not had the benefit of an extra-cantonment campaign such as is carried out around Army cantonments. On the other hand the need is not so great here as in the southern camps.

The following recommendations were issued as an order on May 30, 1918:

In order to insure a safe supply of milk, ice-cream, and soft drinks upon the station, the following requirements have been determined upon and are recommended for enforcement:

(a) All dairies and bottling works supplying milk, ice-cream, or soft drinks to the station must be inspected by a sanitation officer or a member of the medical personnel, at least once a month. Inspection must show that the premises are properly and adequately lighted, drained, ventilated, and screened and have proper plumbing. The floor must be of impermeable material which can be flushed and washed clean with water. All utensils, holders, milk machines, ice-cream machines, bottles, etc., must be sterilized with steam each time before being used. The equipment of the plant must be adequate and its operation conducted in a sanitary manner.

(b) Whenever it is deemed necessary employees must submit to a physical examination, and to vaccination against typhoid and smallpox.

(c) Evidence must be shown that milk has been pasteurized at 140 F, for 20 minutes, and immediately cooled and bottled. The total bacterial count must not exceed 50,000 organisms per c. c., at the time of distribution.

(d) The same process of pasteurization must be carried out on the ice-cream mixture before freezing, and after this treatment the ice-cream must be well protected from outside contamination until delivered.

(e) Carbonated waters and other soft drinks must not contain a total count on agar of more than 100 organisms per c. c., and must not ferment lactose broth in 50 c. c. amounts.

*United States Naval Training Station, Great Lakes, Ill.*—Cerebrospinal fever. An epidemic of this disease occurred in the spring coincident with the increase of the size of the station from 800 to 10,000, and a second epidemic began in December coincident with an expansion from 13,000 to 25,000. The fact that epidemics corresponded so closely with periods of expansion is very striking. The first epidemic ended with more settled conditions and the advent of summer. Apparently no other factors played any part.

Diphtheria. Sporadic cases perpetually appear, traceable entirely to outside infection.

Pneumonia. This disease follows meningitis so closely in distribution that it is believed that many influences exist in common.

Mumps. Mumps is so common both within and without the station that attempts to trace sources of infection are impossible, and the same applies to measles and German measles. Although a factor in all infectious diseases, it is in mumps, measles, and German measles that the very pernicious influences of public gatherings of all kinds are felt. Philanthropic organizations and individuals have placed a heavy burden on the Navy, in many cases far greater than any benefit to be derived.

Scarlet fever. This disease has been mostly sporadic, except a severe epidemic in July, traceable to a food handler suffering with the disease.

Veneral diseases. These have not been excessive, a majority being found in recruits upon reporting for duty. The remainder are traceable to the excellent opportunities for exposure in neighboring large cities. Prophylaxis produces good results if taken in time, which is impossible when recruits are granted 48-hour liberty.

*Housing of recruits.*—During the spring rush men were placed in tents. In the fall the permanent barracks in the various camps were occupied. The December rush greatly overtaxed capacity, especially detention, and men often passed through detention in as short a period as three days.

The following is a report of dental operations (from March 22 to December 31, 1917):

(1) Original examinations of recruits received in detention and records made .....	40,000
(2) Dental operations exclusive of original examinations .....	19,785
Total .....	59,785

The following is a report of the work done in the recruiting office during the year:

	U. S. Navy (Regular).		Naval Reserve.
	Original.	Reenlist.	
Total applicants .....	1,041	76	4,096
Total enlisted .....	559	73	3,594
Examined by medical officer .....	885	76	4,096
Rejected by medical officer .....	275	.....	447

Pharyngeal culturing to discover carriers of meningococci was begun at this station in May, 1917. This report comprises work done by the Memorial Institute for Infectious Diseases, Chicago, and by the Northwestern University Laboratory and U. S. Public Health car "Wyman," as well as by the station laboratory. The work of the laboratories first mentioned began in May and extended into September, 7,294 cultures being taken. The remainder of the work was done at the station laboratory.

Beginning May 15, near the termination of an epidemic of cerebrospinal fever at this station, the men in contact with cases of cerebrospinal fever have been cultured wherever the cases have developed. At present it is the practice to keep these men in quarantine until the laboratory can make a preliminary report based upon the cultural characteristics of the colonies that have developed, and the morphology and staining reactions of the organisms isolated. The men who are suspected carriers by this preliminary report (given within 24 hours from the time of culture) are withdrawn from the company and placed in isolation within the cubicles at the disposal of the regimental hospital unit. The quarantine on the remainder of the men in the company is then lifted, thus keeping them from duty a minimum length of time. The following day a final report is given by the laboratory, based upon the agglutination reactions of the suspected organisms, and the men in isolation are discharged to duty or transferred to a carrier camp, accordingly as the final report is negative or positive.

On June 22 an observation camp (Boone) was established in which all patients discharged from the naval hospital were detained until two successive negative cultures were obtained at intervals of 3 to 4 days. Carriers thus discovered were transferred to the carrier camp. In November the observation camp was discontinued as a special station camp, since which time cultures have been made at the hospital, from which the patients are discharged directly to duty.

Pharyngeal cultures are taken from all men arriving at the station as early as possible in their period of detention. The men suspected of being carriers are isolated in the cubicles awaiting the final report and their disposition is determined as in the case of contacts. Within a few days before transfer from the station to duty elsewhere, all men are again cultured to reduce the danger of carrying infection to other stations. Men suspected of being carriers are taken from the "drafts" and disposed of as above. Carriers are detained in a special camp while undergoing treatment, and pharyngeal cultures are made at intervals of five days. After four successive negative cultures the men are discharged to duty. The period of detention in the carrier camp varied from 20 days to several months. During the period when the observation camp (Boone) was in operation, men discharged from the carrier camp were sent through there as well as hospital convalescents.

The results of pharyngeal cultures made in incoming detention and on men leaving the station are recorded in the health records. A card index is kept of the carriers found.

A tabulation under several headings of the cultures made at this station to date, follows:

<b>Men cultured in incoming detention:</b>	
Number cultured.....	10, 630
Number positive.....	139
Percentage, positive.....	0.7
<b>Men cultured in drafts before leaving station:</b>	
Number cultured.....	14, 008
Number positive.....	234
Percentage, positive.....	1.6
<b>Contacts of cases of cerebro-spinal fever:</b>	
Number cultured.....	3, 660
Number positive.....	44
Percentage, positive.....	1.2
<b>Hospital convalescents:</b>	
Number cultured.....	1, 463
Number positive.....	39
Percentage, positive.....	2.6
<b>Meningococci carriers:</b>	
Number of cultures.....	2, 716
Number of positives.....	623
Percentage of positives.....	22.9
<b>Cultures made, including:</b>	
Carriers.....	41, 486
Number of positives, including carriers.....	1, 079
Percentage of positives, including carriers.....	2.3
<b>Cultures made, exclusive of carriers:</b>	
Number positives, exclusive of carriers.....	456
Percentage positives, exclusive of carriers.....	1.2
<b>Cultures made, unclassified</b>	
Total cultures for station laboratory during 1917.....	42, 155
Total cultures made for other laboratories, unclassified.....	7, 294
<b>Total cultures made on the station during 1917.....</b>	
	49, 449

The following is a report of all laboratory work done at laboratory of this station (since October 1, 1917):

Meningococcus cultures.....	32, 736
Meningococcus agglutinations.....	1, 183
Urethral smears.....	321
Diphtheria cultures.....	306
Urinalysis.....	223
Throat smears.....	29
Blood counts.....	7
Conjunctival smears.....	32
Wassermann reactions.....	241
Feces.....	953
Feces plated on Endo's media.....	146
Sputum.....	89
Smears from chancroid.....	9
Urine sedimentation stain.....	16
Differentials.....	6
Water analysis (bacteriological).....	304
Sewage analysis (bacteriological).....	231
Bottled drinks (bacteriological).....	6

**Meningococcus carriers.** This work has been unsatisfactory. The isolation of carriers was started too late in the summer to be considered a factor in the cessation of the disease in July. During the summer cultures were continued and carriers isolated, but at the proper season the disease started and the season curve is the same as other years. Culture work has simply produced two problems, of which the carrier problem is more serious than the meningitis. It is safe to say that the average enlisted man would prefer a diagnosis of meningitis to one of carrier.

There is little doubt that the camp contains over 5,000 carriers. If these were entirely segregated and the remainder given a few days' liberty, the high percentage of carriers would again be present upon their return. With anything short of absolute isolation the carrier situation changes far too rapidly to allow of detection and isolation.

**Recommendations:**

- (1) Curtailment of the activities of the philanthropist in the matter of public entertainments and modifications of the Navy uniform.
- (2) The establishing of a rigid outgoing detention.
- (3) Provisions for housing all men on the station to prevent the introduction of disease and to permit quarantine after disease is introduced.

The use of Schick's test was begun on September 14, 1917, for the purpose of finding its value as an aid in handling diphtheria in the service. The technique used at the Willard Parker Hospital, New York, was used. Readings of the reaction were made at 24, 48, 72, and 96 hours for a time, when it was decided to only make the readings at 48 hours after the inoculation.

The administration of Behring's serum was begun on November 8, 1917, and an effort was made to give all men showing a positive reaction to Schick's two doses of the serum, the second dose being given one week or 10 days after the first. At this time an effort was made to do Schick's on all men upon their arrival at the incoming detention camps. It was soon found that, due to the large numbers of men coming in, it was impossible to do Schick's and complete the immunization of Behring's serum on all men. Acting on the instruction of the medical officer, the practice of attempting to inoculate all the men coming in was abandoned and a closer study of the work started. New permanent companies in Camp Dewey were taken for this study.

Entries are made in the health records of the men receiving Schick's test; Schick's test positive, negative; also of the positives receiving Behring's serum.

Up to the present time not enough data have been collected from which any definite information can be obtained. The following data have been collected:

Total number of men receiving Schick's test.....	4,835
Total number of men showing positive reaction (42.08 per cent).....	2,045
Total number of men showing positive Schick's reaction but who had no Behring's serum.....	855
Total number of men that have had the 2 doses of Behring's serum.....	805
Total number of men that have gotten only 1 dose of Behring's serum.....	385
Total number of contacts cultured (7 of which had previously received 2 doses of Behring's serum).....	114

The following is a report on men having diphtheria and antitoxin diphtheria and those having antitoxin alone:

Diphtheria and antitoxin.....	78 men, positive 30, or 37.1 per cent.
Diphtheria alone.....	81 men, positive 10, or 32.2 per cent.
Antitoxin.....	7 men, positive 4, or 57.1 per cent.

It is probable that the percentage of positives is not quite accurate, as many of the results were read at 48 hours. The final readings on those done this month were made at 72 hours, which time is best unless an emergency exists, in which it is desirable to give the antitoxin at once. The percentage of positives found was 47.3. The 385 men who only got one dose of Behring's were sent out to different camps and could not be located until the time had passed for their

second dose. Since beginning the new method we find that the largest number of positives had resided in towns of between 500 and 10,000 population, 54.02 per cent; the country coming next, 47.05 per cent; and cities from 10,000 up, 43.01 per cent, 64 men from Chicago showing 39.006 per cent positive. While the number of men having diphtheria and no antitoxin is small, it is rather interesting to note the low percentage of positives, 32.2.

#### TWELFTH NAVAL DISTRICT.

*U. S. Naval Training Station, San Francisco, Cal.*—After two years of careful observation of the climatic conditions at this station there appears no reason to alter the opinion expressed in the annual sanitary reports for 1915 and 1916; that the relatively high sick rate in the past has been due not to the climate but to badly ventilated and insanitary buildings.

This is borne out by the fact that, despite the crowded condition of the station consequent upon mobilization, the relative sick rate has materially decreased, due, it is believed, to the quartering of all men in detention camp in tents rather than in the wretchedly insanitary detention barracks as before, and also to a number of general sanitary improvements in ventilation, clothing, and messing, previously recommended by the medical officer, but which he had been unable to have put in effect until the increase in personnel consequent upon war made such improvements immediately and imperatively necessary and increased money allotments made them possible.

The main barracks are overcrowded, it being necessary to swing hammocks on 2½-foot centers in addition to berthing men in cots on the main floor. Cots are placed on 5-foot centers, the men being required to alternate head and feet, so as to minimize droplet infection. This same alternate head-and-foot rotation is followed in swinging hammocks. The ventilation of this building has been materially improved by construction of transoms over each window, these transoms being fitted with a glass baffle plate to direct the air current toward the ceiling, and by the substitution of ventilating skylights for the former closed types. As soon as mobilization seemed probable, it was decided to abandon the old detention barracks for dormitory purposes and to establish a detention camp, the old barrack building to be utilized for offices, dispensary, and mess halls. Tents, to the number of 1,750, of the wall type, 9 by 9 feet, were purchased in San Francisco, and a definite camp plan determined upon, so that it could be pitched in successive units as necessary. Three toilets and three bathhouses were erected in convenient localities in this camp. Each of these buildings is of frame construction, concrete floored, sewer connected, and screened. Coal stoves with coil water heater in each of the bath buildings provide an ample supply of hot water for bathing purposes. Concrete scrub-clothes tables, sewer connected, and with shed coverings, are provided for washing clothes.

The men in this camp are quartered two or three to the tent, as may be necessary. At one time during the month of December it became necessary for a period of eight days to quarter four men to a tent in about one-third of the camp. Each tent is provided with a fly, is floored, well drained, electric lighted, and provided, since the

onset of cold weather, with an oil heater. Each man is provided with a cot. The camp is well drained and has excellent board sidewalks. Weather conditions to date have been unusually mild, but it is believed that the camp as constructed will withstand any weather likely to be encountered. A separate building has been erected containing kitchen and ship's store on the first floor and quarters for the commissary school on the second floor. This kitchen is of excellent design, well equipped, and capable of providing for 5,000 men.

The medical department's portion of this camp consists of dispensary and laboratory. This dispensary not only provides for the care of such men as appear at sick call, but also is charged with the vaccination and administration of antityphoid inoculations to all recruits, which measures are completed during the detention period, 21 days, during which they remain in this camp.

The detention camp will accommodate 4,500 men, and from a sanitary standpoint is very satisfactory. Improvement as a detention camp could be made by its division into groups of 100 men, to enable more complete segregation. Such division would necessitate greatly increased toilet, bathing, and messing facilities.

Weekly lectures on personal and general hygiene and venereal prophylaxis are given to all the men by a medical officer and each recruit is provided with a pamphlet of advice on these subjects.

The sick quarters' building has been improved by the addition of two excellent wards, accommodating 20 patients each, a solarium, diet kitchen, and X-ray room. The mess hall and kitchen have been enlarged and improved. Three isolation buildings for contagious diseases have been completed and occupied. The isolation buildings are of departmental design, well located, fully equipped, and very satisfactory. The new wards in the main buildings are occupied and are highly satisfactory. They are designed to furnish a maximum of ventilation, two sides of each being fitted with "simplex" type windows, so arranged that 85 per cent of one side and one end of each can be entirely opened. Floors are all of maple, with linoleum runners. Lighting is of the semi-indirect type, and very satisfactory. Dressing rooms are rubber tiled with composition wainscoting, and toilets have composition floors and wainscoting. The solarium is over the new mess hall and connected with the surgical ward. It is provided on three sides with windows of the "simplex" type, giving 85 per cent opening, and has a large skylight with blue glass. The value of this type of construction for this climate can not be overestimated, as all windows can be left open 340 days of the year, permitting of practically outdoor treatment.

A tent ward of 12 hospital tents has been erected, in series of 3 tents, fly; 3 tents, fly; 3 tents, fly; 3 tents. These tents have a continuous floor throughout, are framed, electric-lighted, and heated by oil stoves when necessary. This ward will accommodate 66 patients, and is admirably adapted for the treatment of influenza, tonsillitis, and similar diseases, or may be subdivided for the care of contagious cases. Tentage is on hand for the erection of a similar ward of 12 tents if necessary. A group of eighteen 9 by 9 feet wall tents is maintained as a receiving contagious ward where suspected contagious cases, on whom positive diagnosis has not yet been made, are

detained in isolation for further observation. These tents are floored, electric lighted, and heated by oil stoves when necessary.

The surgical department consists of a clean surgical ward (one of the new wards), pus surgical ward, operating room, sterilizer room, instrument and dressing room, and surgical dressing preparation room, and is equipped to care for any ordinary type of surgical disease.

Sick quarters accommodation is provided for the following:

Main building .....	90
Isolation buildings (3) .....	54
Tent ward .....	66
Tent ward to be erected if necessary .....	66
Isolation reception ward .....	18
<b>Total .....</b>	<b>294</b>

At present the meningococcus detention camp, consisting of mess hall, bathroom, toilet, eight small shacks, and tentage as necessary will accommodate 120 men, and is capable of expansion to accommodate any demand likely to be made upon it.

The total number of venereal diseases for the year has been relatively small, as follows:

Gonococcus infection, all types .....	392
Chancroid .....	51
Syphilis .....	52

This number includes venereal diseases from all sources. Many men reporting on the receiving ship from the Asiatic station have venereal disease upon arrival, and a large percentage of cases of gonococcus infection of urethra are among recruits reporting on the station with the disease already developed upon arrival. The above figures show that of all men passing through the station and receiving ship 15.5 per thousand were treated for gonorrheal infections, 2.02 per thousand for chancroid, and 2.02 per thousand for syphilis. The total sick days for the year were 37,788, of which number 2,199, or 5.82 per cent, were for venereal diseases. Nineteen hundred and eighty-one men presented themselves for prophylactic treatment. A considerable number of men are beginning to avail themselves of the venereal prophylactic treatment offered at the various emergency hospitals throughout the city of San Francisco.

The health department of the city of San Francisco is cooperating with the medical officer to the fullest extent, and daily reports of communicable diseases are exchanged. When able to ascertain from a man infected with venereal disease the address of the woman by whom he has been infected, the medical officer reports the case to the health officer of San Francisco, the woman is apprehended and examined, and if found to be infected with venereal disease is committed by the court to the custody of the health department for treatment until cured.

Upon it being reported to the commandant that a large percentage of the cases of gonococcus infection were contracted through acquaintances made at two local dance halls, the situation was represented to the provost marshal in San Francisco, and these dance halls were temporarily declared "out of bounds," pending more careful surveillance of their patrons.



The work of the psychiatric unit has been of the greatest value. All recruits are examined by the psychiatrist, and either passed, continued for further observation, or held for survey. The psychiatrist is present when "mast" is held, and all chronic offenders, or apparent delinquents, are thoroughly investigated. This clinic has resulted in the survey and discharge from the service of the following:

Constitutional inferiority	1
Constitutional psychopathic state	1
Epilepsy	10
Hypochondriasis	1
Hysteria	5
Imbecility	3
Neurasthenia	2
Neuritis	1
Psychasthenia	2
Psychosis infective	1
Somnambulism	1
Stammering	2

*Navy Yard and Station, Mare Island, Cal.*—Two distinct eras, influencing health, existed during the year, that prior to the declaration of war, and that subsequent thereto. The influence of the concentration of large numbers of men from all parts of the United States gave rise to a rapid increase in the incidence of diseases subsequent to the declaration of war. This was augmented by the fact that proper provision for the care of these large numbers of men in the early stages could not be made fast enough. Previous to this concentration, health conditions on the station were normal as compared with previous years.

As at all other stations in the United States subsequent to the declaration of war, the problems of sanitation were those developing from rapid expansion, but in spite of this, even at the worst period, conditions were good, and, in spite of great obstacles, they have steadily improved, and at the time of writing this report are now bordering upon excellent.

The habits of the men have been uniformly excellent, especially when it is considered that the percentage of young untrained men has been so large, combined with a shortage of trained men available for instruction purposes. It is considered worth special notice that among the large influx of personnel a very small fraction of 1 per cent were found to be drug users, and the bulk of the men appear to appreciate the necessity for keeping in excellent physical condition during the present national emergency, are very amenable to instruction, and take advantage of the facilities offered to prevent their engaging in dissipations which are ever present to tempt them during their idle moments.

*U. S. Submarine Base, San Pedro, Cal.*—The complement consists of 525 officers and men; percentage of sickness, 18.6; mortality, 4.3 per cent. This high rate is due to an accident on December 17, 1917, causing the death of 19 men; the general health of the station has been excellent. The total number of venereal cases treated was 27, of which 13 were syphilitic, 9 having been infected before reporting to this station, 13 were gonorrheal, 5 of them infected before reporting to this station, and 1 was chancroidal. Fifteen cowpox vaccine inoculations and 117 typhoid prophylaxes were given. There were 6 cases of measles.

The grounds are filled in chiefly from the dredgings of the bay, an asphalt-covered concrete street about 100 feet wide is the main thoroughfare, and the grounds projects out into the bay about one-half mile from the mainland. The buildings are of reinforced steel concrete on a pier built by the city of Los Angeles as a municipal wharf warehouse. One-half of the main building projects over the water and the other half is on filled-in ground. The sleeping quarters are well ventilated, spacious, and easily kept in sanitary condition, ventilated from the sides and overhead. The bunks are double-decked iron framed, with two bunks to a section, which can be removed with the bedclothing and be sunned. The working quarters are divided into their respective divisions by wooden partitions 10 feet high; the officers' quarters are divided into single rooms and are well furnished. The officers' galley is sanitary and well equipped and furnishes food to two messes, one for the senior officers, and one for the junior officers. The galley for the crew is large and well equipped and has a maximum capacity for preparing food for 750 men. The floors of both galleys are tiled and the sides and overhead well screened. The crews' messroom is floored with boards, and the tables and benches are made of soft pine. The general mess system is used for serving food to the crew; the dishes are washed on the tables on which the food is served, as the scullery is not in use at present. A bakery has been installed, which furnishes a good quality of bread and pastry. There are several small ice boxes, which are sufficient for refrigeration of a few days' rations. The crews' showers, wash room, urinals, and laundry, officers' showers, urinals, and heads are in the main building and drain directly into the bay. The crews' head is located about 250 feet from the main building, being a wooden structure with a concrete floor, and containing 30 seats over galvanized troughs flushed with continuous flow of water, draining through pipes into the bay about 75 feet distant. The waste from the table is hauled away in wagons by the city of San Pedro. An incinerator is being put up to burn all waste and garbage. There is no heating in the crews' sleeping quarters, as the climatic conditions do not require heating. The heating system for the officers' quarters, the sick bay, mess rooms, offices, and working quarters is the plenum blast system plus a low-pressure steam boiler gravity system, having a capacity of 30,000 cubic feet of air delivered per minute. This system is now being finished, but no trial has been given it here. The water supply is furnished through the city of Wilmington, Cal., and is good both in quality and quantity. A system has been installed for heating water, which is satisfactory. The bathing facilities are ample. An electric lighting system is installed throughout the building and grounds. There are gas connections wherever needed.

The sick bay is situated in that portion of the main building extending over the water. There are 16 beds in the sick bay, which is sufficient for the present complement. The dispensary is adjacent to the sick bay and is well equipped. The operating room is connected with the sick bay by a large double door, the surgeon's preparation room connecting direct to operating room. The operating room has one large operating table, solution stand, instrument stand, and dressing tables. There is one instrument sterilizer, two large water tanks for hot and cold water, one high-pressure steam,

sterilizer (autoclave), and hot and cold running water faucets. The surgeon's preparation room is equipped with washbasins with foot control, hot and cold water, lockers for poisons, dressings, and narcotics. The operating room is well equipped for any operation. Venereal treatment and prophylaxis room is close by the sick bay. All quarantine cases are placed in the quarantine camp of the naval reserve training camp, which is on the same grounds as this station.

#### THIRTEENTH NAVAL DISTRICT.

The thirteenth naval district includes five section bases, each provided with one or more medical officers and a sufficient number of hospital corpsmen, with the exception of the Alaska base, which has been visited by a medical officer in connection with enrollment and the necessary vaccinations. The thirteenth naval district, of course, includes the navy yard, Puget Sound, Wash.; the naval training camp at Seattle, the naval training camp at the navy yard, Puget Sound. The detention camp established in April, 1917, serves both camps. The work at the yard and at the camps engrosses the whole time of two dental surgeons and a female assistant. During the six months that terminated December 31, 1917, there have been over 200 dental treatments of one kind or another. The following additions and improvements affecting the medical department have been made at the navy yard:

- Erection of a building containing disinfecting plant in connection with reception of recruits.

- Enlargement of dressing room at dispensary.

- Extension to board of labor building for physical examinations to relieve the overcrowding at the yard dispensary.

- Bacteriological laboratory.

- Department for special work in connection with diseases and injuries of the eye.

A medical officer has been detailed for duty with the marines (492 officers and men) instead of having marines go to the hospital and consult the officer of the day there. The medical aid to the commandant says in his report:

"There are at present attached to the navy yard in connection with the thirteenth naval district 101 enlisted females. These girls are living in houses situated in Bremerton and Seattle, Wash. In some instances the hygienic conditions under which they exist are bad, particularly with respect to ventilation, which is defective, due to overcrowding and improper and insufficient bathing facilities. Often two girls occupy one small, poorly ventilated room, and of late quite a number have come down with mumps, measles, and tonsillitis. Under present conditions it is not possible for the medical department charged with the responsibility and care of the health of the enlisted woman to do much toward disease prevention. If the enlisted woman has come to stay, it appears reasonable that consideration be given to this question. I have to propose the erection of a building, in the nature of a barracks, on the naval reservation, for the purpose of housing female enlisted personnel. It is realized that this suggestion is fraught with novel possibilities, but it is believed that the best interests of the service demand more careful regulation of the living conditions and movements of this new naval adjunct.

"On July 24, 1917, authority was granted for the establishment of a bacteriological laboratory in connection with the thirteenth naval district, and \$2,500 was allowed for this purpose. Delay in equipping was inevitable, but by September, 1917, the completion of the necessary alterations in the building set aside for the purpose, and the arrival of necessary supplies, permitted a start. Lieutenant J. C. Rud-dock, Medical Corps, United States Navy, is in charge of the laboratory under the supervision of Surgeon B. J. Lloyd, United States Public Hospital Service, and the medical aid.

"Up to November 1, 1917, throat smears from 1,335 men were made on glass slides. These smears were stained by the Gram method and examined microscopically. All men showing Gram negative diplococci were isolated and cultures were made from each nasopharynx on dextrose-serum-agar. No carriers were found.

"On November 1 the method was changed, cultures being made directly from the naso-pharynx. During the month of November 239 men were examined, the cultures were grown on dextrose-serum-agar, suspicious colonies were picked up and isolated, and all those found to be Gram negative diplococci were again inoculated into glucose-dextrose-serum-agar. If no fermentation developed, these were considered negative for meningococci; if fermentation presented, agglutination was performed to corroborate findings. No organisms were found that fermented dextrose.

"During the month of December cultures were made from 250 men, of which number 144 were new recruits. Agglutination of all Gram negative diplococci found was attempted. No carriers were found.

"Considerable time, thought, and labor has been devoted to the venereal question and vice situation by the medical aid and the sanitary advisor and inspector. The problem has been attacked by the following methods:

"Campaign of education: (a) By means of frank talks to the men at various times; (b) distribution of printed advice; (c) posting of placards, directing attention to dangers from illicit intercourse.

"Prophylactic stations were installed at the training camp, navy yard, Puget Sound, at the training camp, Seattle, Wash., and on the Colman Dock in Seattle, Wash. The latter place is the point of departure and arrival to and from Bremerton and Seattle. The station is easy of access to anyone leaving Seattle for Bremerton, is manned by three hospital corpsmen and a pharmacist, and is open at all times. The men understand that they must take prophylactic treatment after exposure. They have been impressed with the necessity of early treatment. Men who develop venereal disease and whose names do not appear in the records of prophylaxis are disciplined. Instructions similar to the above were forwarded to all the medical officers at section bases, and as an additional factor in combatting the disease bimonthly inspections are made for the purpose of discovering concealed cases.

"The question of arrest and segregation of prostitutes was taken up with the Seattle authorities and on November 9, 1917, the first arrest was made. Since then 211 women have been arrested and detained pending the result of Wassermann and microscopic tests. Of this number 136 were found infected and incarcerated in the city hospital where they will be treated until it is believed they can no longer

convey infection. Considerable opposition to this procedure developed at first. An attempt to release women detained for syphilis and gonorrhea on the ground that the State laws and regulations did not specify these diseases as 'infectious and contagious' was met by the State board of health in the form of regulations passed December 17, 1917, naming syphilis, gonorrhea, and chancroid as infectious and contagious and requiring all such cases to be reported to the local health officers, who in turn must report to the State commissioner of health. Habeas corpus proceedings were instituted in 15 cases, but upon the showing that the prisoners had not exhausted their legal remedies, such writs were denied. Immediately upon this denial appeals were made to the State board of health, which in cases where the diagnosis of the city or county health officer is questioned renders a 'final' decision, directly or through an 'expert' appointed as arbiter. In all these cases the diagnosis of the city health officer has been sustained, and as yet no further proceedings have been attempted. It is possible if habeas corpus proceedings are instituted, after a decision has been given by the State board of health, that the city health officer may be required to show that his action in detaining these people is reasonable, until their legal status is finally determined.

"The following is a history of the vice crusade in the State of Washington: Ordinance 32444 was passed in November, 1914, providing for the examination of prostitutes. This was never repealed but had not, until recently, been enforced. November 19, 1917, ordinance 37928 was passed, amending sections 6 and 10 of December 17, 1917. A regulation was adopted by the State board of health requiring all cases of venereal disease to be reported by name, initial, or serial number. On January 8, 1918, regulations governing the observation and quarantine, when necessary, of these cases, were adopted. In this State the constitution gives the State board of health quasi-legislative powers, and its regulations have the force of law.

"Male offenders, particularly those who traffic in women, are now receiving attention. To date 34 have been arrested, and those having venereal disease are treated in the same manner as the women; much credit is due Surgeon B. J. Lloyd, United States Public Health Service, for his efforts directed toward and the results obtained in connection with the segregation of infectives and the adoption of the regulations referred to above.

"The board of health, thirteenth naval district, was organized by the commandant's order of July 29, 1917, upon the recommendation of the medical aid and sanitary advisor and inspector. The personnel of the board of health is constituted as follows: President, commanding officer naval hospital, navy yard, Puget Sound; executive officer, medical aid to commandant. Members: Sanitary advisor and inspector; senior medical officer, naval training camp, Seattle, Wash., civil engineer (head of department of public works). Member and recorder, senior medical officer, receiving ship (naval training camp, navy yard, Puget Sound).

"The necessity for the coordination and cooperation of the various medical departments, thirteenth naval district, was apparent from the time of the district's organization, and it was believed that bringing together the responsible heads of these departments from

time to time for the discussion of all matters pertaining to the health of the personnel and sanitation in general would be most apt to produce best results. It was further believed that recommendations made after deliberation by a board of this character would be most likely to bring about a correct solution of such problems as might arise from time to time, and that such recommendations would inspire more confidence in those charged with the duty of acting upon them, and consequently more efficient cooperation in carrying out the recommendations would be secured.

"It may be stated that the care of the personnel in this district necessitates the division of this work into a number of more or less independent units, a condition which no doubt obtains in most if not all other districts. It is also true that measures for maintaining the health of this personnel and the sanitation of camps, barracks, buildings, etc., are closely interwoven with practically all the activities of the different departments. It was found that individual consultations with the heads of these departments often involved inconvenient interruptions, and furthermore that they must needs be multiplied indefinitely in order to secure proper coordination. The proposal to have representatives from each unit or department meet at stated or called conferences under a formal organization met with immediate approval. After an experience of nearly six months it is not too much to say that the board of health has amply justified its existence. Among the questions considered and acted upon by the board of health may be mentioned these:

- (a) Water supply.
- (b) Disposal of stable refuse.
- (c) Change in the construction of drinking fountains.
- (d) Establishment of as small units as possible for men in detention.
- (e) Educational measures with reference to venereal disease.
- (f) Measures tending to protect employees from accident incident to their duties.
- (g) A system of reporting all contagious disease of all units and employees to the board of health daily.
- (h) Establishment of a bacteriological laboratory.
- (i) The establishment of a prophylactic station in Seattle.
- (j) Provisions for housing, clothing, and messing; particularly the arrangement whereby overcrowding is prevented.
- (k) The inauguration of educational and other measures tending to diminish vice and venereal disease in districts surrounding Navy encampments.
- (l) Installation and routine of disinfection of clothing, etc., when necessary.
- (m) Measures for the prevention of the sale of drugs to enlisted men.
- (n) Inspection of dairies supplying milk in this vicinity.
- (o) Examination of rats for plague infection.

"These and many other questions have been considered from time to time. It is understood, of course, that many of these matters were worked out by men in charge of different divisions, but to the board as a body is due the credit of coordinating this work satisfactorily and often of determining the policy to be followed.

"A plan of cooperation between State and local authorities, the Navy and the Public Health Service, has been agreed upon whereby two sanitary inspectors, paid by the Public Health Service, will be detailed to work in the districts mentioned, these men being under the direction of the administrative officer of the Public Health Service detailed to this work (who is also State commissioner of health) but reporting daily, if necessary, to the medical aid to the commandant. The latter has been appointed deputy State health officer, in

order to facilitate this work. One of the inspectors to be assigned to duty is a qualified dairy inspector. The State health commissioner will ask the American Red Cross for a knockdown, portable hospital for Bremerton. Work will be begun along the lines indicated immediately.

"Recruits began to arrive at the training camp, Navy Yard, Puget Sound, in increasing numbers early in April, and were housed in tents. Early in June ground was broken at the extreme western end of the yard, and the erection of the new seaman barracks commenced. On October 16, 1917, recruits were first quartered in barrack buildings. Eight separate units at present constitute the camp proper, each unit being complete in itself, as far as sleeping quarters, kitchen, mess hall, wash rooms, and toilets are concerned. Steam is used for heating. The barrack buildings proper are 150 feet long, 18 feet wide, and 14 feet from the floor to the peak of the roof. Each building is supplied with 34 windows, 34 by 36 inches, which with three large ventilators, placed in the roof, will afford ample ventilation. Eleven 100-watt Mazda drop lamps, arranged in the center of the building, furnish ample light. The air space per capita, when 48 recruits occupy one of these buildings, is 538 cubic feet. Floors are scrubbed biweekly with a 2½ per cent cresol solution. The medical building was placed in commission December 18, 1917. Double bunks were originally installed. Upon recommendation of the board of health, subsequently approved by the Bureau of Medicine and Surgery, the number of men assigned to each dormitory has been limited to 50, and only the upper bunks thus far used.

"It is regretted that it has been impossible to separate the cases of German measles from measles, in connection with the training camp, Navy Yard, Puget Sound.

"Twenty-five men were found suffering from venereal disease on arriving at the Seattle training camp in August, 1917. Syphilis has not been observed at this camp. Of 187 men with gonorrhea, whose cases were recorded at the training camp, Navy Yard, Puget Sound, during the period, July 14, 1917, to December 29, 1917, 60 were found infected on arrival or developed the disease in quarantine within a short time afterwards. Analyzed, this means that 60 men in civil life were infected in a relatively short period of time as against 127 men during the period (July to December).

"From a study of the above data and having in mind Kipling's remark that 'Single men in barracks do not grow to plaster saints' it seems equally true that single men in civil life are not one whit better than they should be. We are further justified, I think, in concluding that there is at present, at least, a rather marked tendency toward improvement in favor of the enlisted man.

"Shortly after the establishment of a training camp on the grounds of the University of Washington (naval training camp, Seattle), it was realized that its life would be much longer than was at first anticipated, and that the camp would be continued throughout the winter. The question of the advisability of quartering the men in tents, or of constructing barracks, was referred to the district board of health and this body, after carefully considering the location and equipment, voted unanimously to continue the men under canvas. The health of these men in tents has been most excellent to date. Each man has four blankets and tents are provided with oil stoves,

the use of which has been carefully regulated. While it is true that the weather has been very mild (it usually is in this vicinity), there has been a great deal of rain, and it is a satisfaction to be able to state that no inconvenience has been experienced. It is believed that the breaking up of this command into small units is in a measure responsible for the low sick rate."

The average number of civilian employees in the Navy Yard, Puget Sound, was 2,657. During the year 4,680 vaccinations were performed among the civilian employees. Prospective employees to the number of 8,418 were given physical examinations during 1917, an increase of nearly 600 over the previous year. Medical treatment was given to civilian employees as follows:

Miscellaneous	50
Lacerated, infected, incised, and punctured wounds	1,906
Concussions and abrasions	1,606
Removal of foreign body in eye	1,206
Burns	306
Sprains, fractures, and dislocations	106
Amputations	2

*Navy Yard, Puget Sound, Wash.*—During the last of the month there has been an epidemic of influenza of a nonvirulent type in the detention camp. This occurred coincident with the shutting down of the water supply due to working on water mains, and may be directly traceable to this, because the water pressure of the drinking fountains was very low. All cases or suspects were placed in bed under guard, gauze screens were put between the beds, and patients were instructed to cough and sneeze on gauze pads. Drinking fountains were swabbed five times daily with a solution of 5 per cent phenol. Sudden and complete subsidence of the epidemic was noted in three days.

*Receiving ship, Puget Sound.*—The number of men aboard has fluctuated widely during the year. The excellent health of the complement can be attributed in large measure to the fact that, to obviate the evils of overcrowding, a camp was established on the golf links overlooking the sound, whither new arrivals were sent and housed, 3 men to a tent, with ample space between tents. Upon the opening of the new seamen's barracks 214 men from Great Lakes were quartered there and 4 cases of cerebro-spinal meningitis developed. The following measures were taken to prevent the spread of the disease: Tent mates and suspects were isolated; tents were turned inside out and exposed to the sun; floors were scrubbed with 1-100 bichlorid solution; all men had their throats and noses swabbed twice a day with Dobell's solution; the men in the detention camp occupied the barracks during the entire winter of 1917-18. They had ample clothing and bedding, and oil stoves gave adequate heat. Not a case of pneumonia developed among them. Each of the men in a barrack building had 538 cubic feet of air space. A venereal clinic was established in the detention camp, and all venereal cases were isolated there and treated until well.

#### FOURTEENTH NAVAL DISTRICT.

*U. S. Naval Station, Hawaii.*—The station consists of the station at Pearl Harbor, a station in Honolulu on the water front, and outlying radio stations on Oahu, Kauai, Molokai, Maui, and Hawaii.



The water supply for the station at Pearl Harbor is pumped directly from artesian wells, and repeated tests have shown a very low bacterial count. The station is adequately equipped with a sewage system and waste is properly disposed of. In this climate, where the thermometer seldom goes over 90 F. or below 70 F., and there is no necessity for overcrowding, the problem of heat, light, and fresh air is easy to solve, and so far there have been no cases of pneumonia. The venereal diseases are the most prevalent, and vice conditions in Honolulu are very bad.

#### DISEASES OF SPECIAL INTEREST.

##### CEREBRO-SPINAL FEVER.

During the summer of 1917 cerebro-spinal fever, which had been quite prevalent in the Navy during the spring, after the beginning of mobilization became sporadic, and the comparatively few cases which occurred at the naval training stations in Newport, R. I., Charleston, S. C., and in the fleet were traceable to previous outbreaks at Great Lakes, Ill., and Norfolk, Va., while 12 cases occurring at the naval training camp, San Diego, Cal., were traced to the naval training station, San Francisco, Cal. The spread of this disease from the principal training stations could not be prevented because of the imperative demand for additional men in the fleet and the inadequate detention facilities for the increased number of recruits. During the autumn very few cases occurred either ashore or afloat. From the summer on a vast amount of laboratory work was done in connection with the detection of meningococcus carriers, and following the experience of the British and recently adopted views in this country the policy of isolating and treating all carriers was pursued.

In December unforeseen results followed the selective draft act. It was thought that this law would prevent the Navy from securing acceptable men of draft age after 12 m. of December 15, and recruiting was so intensified that all training stations and camps suddenly became filled with raw recruits far beyond their proper capacity.

More than 10,000 recruits entered the Great Lakes Training Station in less than weeks despite the fact that detention facilities could accommodate only 3,450 at that time. The detention system broke down completely for several weeks. At times the stay of recruits in detention was reduced to approximately five days, after which they were transferred to the main camp, where they were housed in large groups with less than 80 square feet of floor space instead of the 50 square feet per man allowed in the detention camps. The usual care and supervision which recruits ordinarily received during the normal period of detention were lacking. After transfer the excellent system of intensive training in vogue at Great Lakes was begun at once. Almost coincidentally two severe blizzards occurred, a week apart, with unusually heavy snowfalls. At the same time it was impossible to fit all recruits with overshoes and heavy underwear, owing in part to the fact that an older class of men was being enlisted during this rush period, and hence the principal demand was for garments of unusual size. In addition to active training

these recruits were employed in working parties to clear the station of snow.

In January the natural results followed; outbreaks of cerebro-spinal fever, measles, pneumonia, and other communicable diseases occurred, principally among the men who were recruited in December. Three regiments especially suffered heavily. Two of these, in which 21 and 25 cases, respectively, of cerebro-spinal fever occurred were most affected. The last of the three regiments to be recruited suffered less because the importance of fatigue was better recognized. Thirteen cases developed in this regiment.

Epidemiological study of these outbreaks showed that the incidence of carriers of meningococci and pneumococci and the incidence of the diseases must be considered separately. Neither necessarily follows where carriers are found, other factors being essential for outbreaks of either disease. Overcrowding is the outstanding and most important of these, while other infections, age, exposure, fatigue, mental depression, digestive disturbances, and unsuitable clothing, individually or collectively, undoubtedly play an important rôle. While being subjected to several or all of these factors the recruits were vaccinated against smallpox, typhoid fever, and the paratyphoid infections, and many of them also received the Schick test and toxin-antitoxin immunity against diphtheria. While these procedures are of inestimable value in saving life by preventing disease, and cause no serious ill effects when carried out during the normal detention period, it is possible that they may have been a contributing factor in lowering resistance under the circumstances enumerated. The well recognized necessity of administering these immunizing agents is in itself a strong argument for an unbroken period of incoming detention with light work before intensive training begins. Then, too, the recruit upon entering a naval training station, particularly in the winter time, must adapt himself to a complete change of habits and environment. He must become accustomed to navy discipline, learn to take care of himself, become accustomed to a radical change in apparel and to a change in diet; must learn to sleep in a hammock in barracks, make new acquaintances, and probably overcome a certain amount of homesickness and transient depression of spirits. Experience shows that these changes must be brought about gradually because they all have a decided influence in tending to lower resistance to communicable diseases.

The circumstances attending the outbreak at Great Lakes was aptly summarized by the senior medical officer of that station in the statement that "the attempt to make a sailor too rapidly is to invite disaster."

The history of the outbreak shows that comparatively few cases of communicable disease developed among recruits during the first three weeks of service and that the incidence of both cerebro-spinal fever and pneumonia reached its height between the fifth and seventh weeks. Indeed the most striking parallelism in the incidence of these two diseases was observed both at Great Lakes, Ill., and Norfolk, Va.

Shortly after the heavy snowfalls at Great Lakes there was a wide prevalence of bronchitis and coryza, and among the recruit regiments this was followed by outbreaks of the more serious communicable diseases of the respiratory type.

Similar outbreaks occurred at the Norfolk Naval Training Station at St. Helena, where exposure was even greater because of poorer housing facilities and lack of heat and ventilation. The weather in Norfolk was unprecedented and the bungalows in use were not designed for severe winter weather. The same sequence of events noted at Great Lakes occurred here; serious overcrowding, a complete temporary break in the detention system, difficulties in the matter of clothing, wide prevalence of coughs and colds, rapid multiplication of meningococcus carriers in the station, and the appearance a week or two later of cases of cerebro-spinal fever and the pneumonias here and there in groups scattered all through the station. Measles and mumps increased at the same time. All these diseases were carried into the naval training station at Hampton Roads, Va., by transfer of recruits.

Shortly after the outbreak of cerebro-spinal fever at Great Lakes 10 cases occurred in a draft of men transferred from that station to the training camp at Charleston, S. C.—1 case en route and 9 shortly after arrival. Only two cases appeared in the Charleston personnel; one in a man who took the histories of patients as they came in and the other in a trained nurse in the naval hospital. In spite of a large number of carriers in the draft the disease did not spread. It may be noted that the factors operative at Great Lakes and Norfolk were absent here.

The winter and spring months passed without any other outbreaks of this disease, although as was to be expected in view of its prevalence in the civil population and the unusually high percentage of carriers at large, the disease continued to be reported from time to time from shore stations and ships, although not in epidemic form.

Cerebro-spinal fever is a carrier-borne disease. The carrier is an important and essential factor in spreading the disease; however, the carrier problem is most perplexing, and experience during the year has shown beyond doubt that an attempt to prevent introduction of this disease into a naval station by concentrating efforts upon the detection and isolation of meningococcus carriers is doomed to failure. Previous to epidemiological investigations made at Great Lakes in January, 1918, by Commander O. J. Mink, Medical Corps, United States Navy, and his assistants, the belief had gained currency that it was necessary to control all carriers in order to limit the spread of the disease. Experience there demonstrated that the disease could be controlled without isolating carriers. When the detention system broke down it became impossible to detect all carriers, to say nothing of isolating those who were found.

Even with a full period of 21 days for incoming detention at a large training station it is practically impossible to prevent the introduction of carriers into the main training camps. This is due not only to the great technical difficulties in laboratory procedures for the recognition of meningococci, but as well to intermissions in the carrier state. Carriers multiply rapidly under barrack conditions, and much of the success in eliminating them must depend upon the percentage in the civil population, the season of the year, restriction in the number of men quartered in any one compartment, proper allowance of floor area per man, and upon preventing unneces-

sary points of contact. At best, the percentage of carriers will be higher in the station than in the surrounding civil population. In barracks the bacterial flora of the nasopharynx tends to become uniform throughout the personnel, as was well shown by Lieutenant Commander M. J. Rosenau, Medical Corps, U. S. N. R. F., and his assistants, working among the receiving ship personnel in Boston, where between 20 and 25 per cent of the recruits living in crowded quarters were meningococcus carriers during the cold weather. In the same period recruits living under good hygienic conditions and eating at the same mess showed about 9 per cent carriers, while students in Boston, both men and women, showed from 1 to 2 per cent. Further investigations among groups of men who had been in contact with cases of cerebro-spinal fever showed that from 6 to 11 per cent became carriers in good hygienic surroundings, while the percentage increased to 20 per cent on board ship, and even to 35 per cent when there was overcrowding.

It has been found that the actual number of cases of cerebro-spinal fever in training stations does not bear any definite relation to the percentage of carriers. For example, at Great Lakes, in certain barracks where 25 to 30 per cent of the men were found to be meningococcus carriers, no cases of cerebro-spinal fever developed, while in certain barracks where only 8 or 9 per cent of the men harbored meningococci in the nasopharynx the incidence of the disease was high. In certain instances where the disease occurred carriers were isolated at once; in other cases carriers were left in barracks. New cases failed to develop under both conditions, the other etiological factors receiving proper attention.

The year's experience has shown that it is futile, in the cold months at least, to hope that meningococcus carriers can be eliminated from naval stations, or, indeed, that their numbers can be materially reduced by attempting to detect and isolate all carriers. When a thousand men are cultured and the carriers are isolated as soon as detected, reculturing of the personnel shows as high and frequently a higher percentage of positives than was found during the first examination.

Routine culturing of all incoming recruits at a naval training station is a hopeless task. Furthermore the procedure is useless, because of the continual reintroduction of meningococci into the station by visitors and returning liberty parties, where the factors operating to promote multiplication of carriers render a high percentage inevitable.

Carriers should not be transferred to hospital. They are perfectly healthy individuals and hospitalization is undesirable, and besides, in most instances, their training need not be interrupted.

The various methods of treatment recommended for meningococcus carriers in this country and in England have been tried but none has proved of definite value. It is possible that the systematic use of simple cleansing nasal sprays may have some effect in preventing the spread of the organisms. Weather permitting, carriers preferably should be quartered in tents. The majority soon cease to harbor meningococci under such conditions, separation of the men into small groups doing much to prevent continual reinfection by each other. The influence of warm weather is striking. Experience

has shown that carriers tend to clear up promptly when the weather is warm enough for them to live in the open air, provided droplet reinfection is prevented. Medicinal agents alone have little or no effect.

Formerly it could be expected that carriers would practically disappear in the month of June, not only from the civil population but from the military as well. Doctors in France find that contrary to its behavior before the war, cerebro-spinal fever now persists through the summer as an endemic affection with small foci, and that is our experience this year.

The present policy relating to the control of the disease and disposal of carriers depends upon prompt recognition and early isolation of cases, convalescent patients not being released until after three successive negative cultures from the nasopharynx taken at intervals of five days have been secured. Contacts are quarantined until they have been cultured, those yielding negative cultures being released at once. Carriers found among contacts are segregated in groups as small as possible and detained until three negative cultures have been obtained at intervals of five days. Persistent carriers are reported to the bureau after they have been under observation for a period of two months.

The bacteriological technique involved in the detection of carriers has been simplified and standardized as the result of researches in the United States Naval Medical School and the examination of more than 33,000 cultures in the laboratory at the naval training station, Great Lakes, Ill., where experimental methods were studied in conjunction with the work of Drs. Ludwig Hektoen, George Mathers, and Prof. Edwin O. Jordan of Chicago University. The standard technique resulting from these studies has been adopted by the Army and the United States Public Health Service.

### THE PNEUMONIAS.

Lobar pneumonia and broncho-pneumonia are responsible for more deaths in the Navy than all the other communicable diseases combined.

Between January 1 and July 1, 1918, the pneumonias caused 602 deaths in the Navy; all other communicable diseases including tuberculosis, 391. In these figures deaths from pneumonia following measles have been charged to measles and not to pneumonia.

This is not surprising since pneumonia is ever present in all parts of the country. These diseases are so prevalent and the public is so accustomed to them that little or no apprehension is excited even in the worst pneumonia months, although year after year they reap an appalling toll in deaths, whereas comparatively few cases of cerebrospinal fever create great alarm because of the relative infrequency and high case fatality rate of this disease. The causative organisms of both diseases are disseminated in the same way and the predisposing etiological factors are identical. The pneumonias always cause a great many more deaths in the community than cerebrospinal fever.

The history of pneumonia in the Navy during the past year demonstrates conclusively that the predisposing etiological factors—overcrowding, exposure to inclement weather, minor catarrhal in-

fections of the respiratory tract, fatigue, and clothing unsuited to the weather—play the most important part in exciting pneumonia as well as cerebro-spinal fever. Undoubtedly there are also the most important factors in civil life. Overcrowding occurs in street cars, railroad stations, places of public amusement, and shops.

Where outbreaks of the pneumonias and cerebro-spinal fever have occurred simultaneously at naval stations, as at Great Lakes and Norfolk, there has been a striking parallelism in the incidence of both infections. Of course, pneumonia in various forms has appeared in many places where there has been no cerebro-spinal fever as was to be expected in view of the relative frequency of the two diseases in civil life.

Quite naturally pneumonia has been reported from most of the shore stations and from many of the ships, although nowhere has either lobar pneumonia or broncho-pneumonia assumed epidemic proportions except at San Diego, Cal., and during the outbreaks at Great Lakes, Ill., and Norfolk, Va., mentioned under cerebro-spinal fever.

At the naval training camp, San Diego, in a complement of 4,200, 34 cases of lobar pneumonia with 7 deaths, and 15 cases of broncho-pneumonia with 10 deaths occurred in the months of January and February, 1918. Of these, 8 followed measles and 7 of the latter died. This outbreak illustrated the danger of using large buildings as barracks even in a most favorable climate. The case fatality rate for pneumonia at San Diego in these two months was 34 per cent. Forty-five cases were typed, as follows:

	Lobar pneumonia.	Broncho-pneumonia.
Type I pneumococci -----	12	3
Type II pneumococci -----	16	1
Type III pneumococci -----	5	1
Type IV (doubtful) -----	4	3
	37	8

The streptococcus did not play a prominent rôle in this outbreak although empyema was a sequel in 15 cases, causing 10 deaths. Empyema followed in 5 Type I cases, 8 Type II cases, 1 Type IV case, and one of doubtful type.

The most recent figures for the Great Lakes station are the following:

1918	Lobar pneumonia.			Broncho-pneumonia.		
	Cases.	Deaths.	Mortality.	Cases.	Deaths.	Mortality.
			<i>Per cent.</i>			<i>Per cent.</i>
First quarter.....	224	28	12.0	109	33	25.1
Second quarter.....	105	14	13.3	36	1	2.1
Six months.....	329	42	12.8	145	39	26.9

The complement of the training station during this time varied from 24,000 to 35,000. From November 1, 1917, to March 1, 1918, covering the principal pneumonia months, 222 cases of pneumococcus lobar pneumonia, and 40 cases of broncho-pneumonia were admitted to the naval hospital at Great Lakes.

Of the 222 lobar pneumonia cases 15 died, giving a case fatality rate of 6.7 per cent. Ten of the deaths were due to uncomplicated pneumonia; 2, to pneumococcus meningitis; 1, to gastric ulcer; and 2 to complicating broncho-pneumonia followed by empyema. Of the 222 cases, 7 per cent were followed by empyema, 5 per cent by otitis media, and 3 per cent by serofibrinous pleurisy. Fifty-four of the 222 cases received therapeutic antipneumococcic serum, either Type I or polyvalent. Among these the case fatality rate was 7.4 and the percentage of complications was higher than for the series as a whole. Empyema occurred in 11 per cent of the 54 cases. Obviously this experience with therapeutic serum was not altogether satisfactory.

The occurrence of a certain number of cases of pneumonia in nearly every month of the year at a large station is inevitable. Observations at Great Lakes demonstrate the serious effect of slight exposure to cold and dampness when large bodies of men are subjected to such influences at the same time. In one instance the brigade was kept in formation in a raw wind for a considerable length of time because of delay in the arrival of a distinguished visitor. The next week showed a marked increase in the number of admissions to the sick list for pneumonia. Upon another occasion during preparations for making one of the celebrated Great Lakes group emblematic photographs many of the men threw themselves upon the damp grass and this was likewise followed by the appearance of a considerable number of cases of pneumonia. There is nothing new about this, but cause and effect can seldom be put together so conclusively.

The outbreaks of pneumonia at Great Lakes and in both stations at Norfolk occurred at the same time following the previously mentioned period of hurried recruiting in December. Pneumonia was not prevalent in the Navy during the fall of 1917, nor indeed until after the first of January, but since then this has been an exceptionally bad year for pneumonia throughout the country.

The naval hospital, Norfolk, Va., and the naval hospital, Hampton Roads, Va., received practically all of the cases from the naval stations in that vicinity as well as patients from a large personnel afloat. The statistics for these hospitals are as follows:

1918	Lobar pneumonia.			Broncho-pneumonia.		
	Cases.	Deaths.	Mortality.	Cases.	Deaths.	Mortality.
<b>First quarter:</b>			<i>Per cent.</i>			<i>Per cent.</i>
Naval hospital, Norfolk, Va.....	181	28	15.46	75	24	32.0
Naval hospital, Hampton Roads....	35	5	14.28	9	3	33.3
<b>Second quarter:</b>						
Naval hospital, Norfolk, Va.....	69	13	18.8	7	2	28.6
Naval hospital, Hampton Roads....	17	3	17.6	1	.....	.....
<b>Total for 6 months.....</b>	<b>302</b>	<b>49</b>	<b>16.2</b>	<b>92</b>	<b>29</b>	<b>31.5</b>

In the first quarter 15 of the broncho-pneumonia cases at the Norfolk hospital and 2 at the Hampton Roads hospital were secondary to measles; likewise 9 cases of lobar pneumonia at the Norfolk hospital followed measles, whereas during the second quarter none of the cases was secondary to measles.

Incident to an epidemiological investigation conducted in February a series of 147 cases of primary lobar pneumonia and 33 cases of primary broncho-pneumonia admitted to the Norfolk naval hospital between December 1, 1917, and February 15, 1918, were found to have given a case fatality rate of 4.83 per cent for lobar and 9.1 per cent for broncho-pneumonia. In addition to these there were treated during the same period 24 cases of lobar pneumonia and 60 of broncho-pneumonia as complications or sequelæ of other diseases, including 5 cases of lobar pneumonia and all 60 of the broncho-pneumonia cases which were secondary to measles. Of the secondary cases 4, or 80 per cent, of measles lobar pneumonia and 30, or 50 per cent, of measles broncho-pneumonia died. Suppurative pleurisy followed in 41 cases with 10 deaths.

The combined series of primary and secondary cases, both diseases, 264 in all, gave a death rate of 21.9 per cent, a rate very close to that for the combined diseases in the first quarter of 1918, which includes March, the worst pneumonia month during which the case fatality rate was 20 per cent.

*Types of Pneumococci.*—It has not been possible to type pneumonia in routine practice, but a series of 362 cases typed at various naval hospitals is probably representative.

*Pneumococci.*

	Cases.	Type I.	Type II.	Type III.	Type IV.	Pneumococcus plus streptococcus.	Pneumococcus type not determined.	Streptococcus.	Streptococcus hemolyticus.	Negative.
Great Lakes.....	120	6	7	0	20	8	16	30	18	18
League Island.....	68	11	4	9	34	.....	5	5	.....	.....
Chelsea.....	100	14	15	2	67	.....	.....	2	.....	.....
San Diego.....	37	12	16	5	2	.....	2	.....	.....	.....
Hampton Roads.....	27	10	9	0	17	.....	1	.....	.....	.....
	362	53	51	16	140	8	24	37	18	18

It appears that Type IV organisms constituted more than 50 per cent of all pneumococci relegated to type. The whole series gives percentages similar to those determined at Fort Riley, Kans., and elsewhere during the past season. On the other hand the small series at San Diego gave percentages which agree pretty well with the findings at the Rockefeller Institute. The figures for the hospitals at San Diego and Hampton Roads were derived from reports of pneumococcus cases only. It is not to be understood that streptococcus cases did not occur, but separate reports from these hospitals indicate that the incidence of streptococcus infections was not great.

*Therapeutic use of antipneumococcic serum.*—At the Naval Hospital, Chelsea, Mass., the 14 cases of Type I pneumonia were treated with serum and gave a mortality of 7.2 per cent. This low rate was attributed to the use of serum, but in the Naval Hospital, League Island, Pa., where all the Type I cases, 11, were so treated, 2 died, giving a mortality rate of 18.2 per cent. Antipneumococcic sera have not been used in a sufficiently large series of cases in the Navy to warrant definite conclusions, but from analysis of results obtained in small series at various stations involving very different climatic



conditions and environments it would appear that neither Type I nor polyvalent serum has had any marked influence on the case fatality rate.

*Empyema following pneumonia.*—During the past season empyema as a complication of pneumonia occurred in the Navy, as it did elsewhere, in an unusually high percentage of the cases. At the Naval Hospital, League Island, Pa., in 107 cases of lobar pneumonia, empyema was a sequel in 27 cases or 25.2 per cent. These 27 cases were all caused by pneumococci.

Empyema occurred in 49 or 34.2 per cent of 140 cases reported from the naval hospital, Chelsea, Mass. The streptococcus hemolyticus was isolated from two of these; pneumococci were responsible for the others, 51 per cent of which were due to Type IV pneumococci.

At the naval hospital, Great Lakes, between January and July 1, 1918, empyema developed in 69 or 20.2 per cent of 341 cases of lobar pneumonia, and in 16, or 23.8 per cent, of 67 cases of broncho-pneumonia.

The types of infecting organisms are shown in the following table:

#### EMPYEMA CASES AT GREAT LAKES.

##### *Pneumococci.*

	Cases.	Type I.	Type II.	Type III.	Type IV.	Type not determined.	Pneumococcus plus streptococcus.	Streptococcus.	Streptococcus hemolyticus.	Negative.	Not determined.
Empyema following lobar pneumonia...	69	2	1	0	2	12	3	26	15	6	2
Empyema following broncho-pneumonia.	16	0	0	0	0	1	1	7	2	1	4

The largest number of empyema cases admitted to any one hospital during this half year, were reported from the naval hospital, Norfolk, Va., where 128 cases with 25 deaths were treated, resulting in a case fatality rate of 19.5 per cent. Seventeen of the cases were admitted to hospital with empyema, and of the remaining 111 cases 70 were secondary to lobar pneumonia and 16 to broncho-pneumonia. The other 25 cases followed pleurisy, otitis media, tuberculosis, cerebro-spinal fever, and various other infectious diseases. During this period 250 cases of lobar pneumonia and 82 of broncho-pneumonia were treated in the hospital, so that empyema complicated 28 per cent of the lobar pneumonias and 19.5 per cent of the broncho-pneumonias. Eleven, or 8.6 per cent, of the 128 patients at this hospital were invalided from the service. At the Great Lakes hospital only one patient among 85 has been invalided from the service.

There occurred in the force afloat 1,007 cases. The highest incidence for any one month was in March, 1918, 225 cases, and the lowest in August, 28 cases.

During the whole year, from 339 ships comprising vessels of all classes and including the Atlantic Fleet, as well as the other principal ships of the Navy, 791 cases of pneumonia were reported.

Eighty vessels reported no cases during the entire year; 31 reported 1 case each, and 42 reported 3 or less. For the remaining 186 ships

the greatest number of cases reported was 31 from the U. S. S. *South Carolina*. The highest incidence in any month for one ship was 15 cases, U. S. S. *Michigan*, in March. The highest incidence for any one week occurred in the same ship, 11 cases, in the second week in March, with 1 case the preceding week and 2 the following week. Seven cases occurred in the U. S. S. *South Carolina* during the second week of February, with 3 the preceding week and none the following week.

#### MEASLES.

With the induction of several hundred thousand young men and boys into service this disease became a formidable menace to the health of the Navy. But for the detention systems in operation at training stations and camps measles undoubtedly would have caused most serious interference with the training of new personnel and with the movements of ships.

Seven hundred and seventy-one cases of measles occurred in the force afloat from July 1, 1917, to July, 1918. From 339 ships, including ships of the fleet and other vessels of all classes, 626 cases were reported. An analysis of these shows that 202 vessels reported no cases during the year; 53 reported 1 case each, and 22, 2 cases each. The largest number of cases occurring in any one ship during the year was 20 in the U. S. S. *Leviathan*, where the crew was exposed repeatedly to infection by troops. The greatest number of cases in any one week in one ship was 10, in the *Leviathan* during the first week in January, with 2 cases the preceding week and 1 the following week.

Measles is the most easily transmitted of all the communicable diseases of the respiratory type with the possible exception of influenza and it was not to be expected that damage from this disease could be avoided, since a considerable proportion of the new personnel came from small places and rural communities in the Middle West and South, and a relatively high percentage of such personnel had not been exposed previously to measles. For example, a canvass of three regiments at Great Lakes, comprising 4,841 men, showed 905 nonimmunes, 18.7 per cent. About 10 per cent of the latter acquired measles or German measles during their stay at the training station. None of them gave a history of a previous attack.

The disease is being brought to training stations constantly. Of course, many cases are discovered in incoming detention, but measles is also being reintroduced by men returning from leave or liberty where they have been exposed at home, in street cars, and in places of public assembly. Consequently successful repression depends upon the proportion and distribution of immunes, the size of population groups, and early detection of cases.

On the whole, training stations have been highly successful in the prevention and control of measles, but leaving the cold months of the year out of the argument it is a debatable question whether the ultimate damage to the service both in deaths and sick days would not be less if the nonimmunes contracted measles and had it over with once for all at the training station during the late spring, summer, and fall months. Contrary to general opinion many authorities believe that an attack of measles confers lasting immunity.

Second attacks of genuine measles are very infrequent and negligible from the standpoint of damage.

The reasons for the seasonal prevalence of measles are the same as those for the other respiratory diseases. The factors which play an important part in the development of pneumonia and cerebrospinal fever probably have little to do with predisposition to measles, but the factors concerned in disseminating the organisms or virus are fully operative—close housing, personal contact, coughing, and sneezing. Naturally the weather has much to do with these.

Measles is a serious disease and when large numbers of non-immunes are gathered together it is prone to become devastating in its effects, particularly under barrack conditions in cold weather when pneumococci, streptococci, and meningococci commonly constitute a part of the uniform bacterial flora of the upper respiratory tracts of men living together in large groups, but during the progress of an epidemic of measles the passage of the primary virus from person to person may result in such intensification of virulence that the uncomplicated disease itself may become extremely fatal.

During seven weeks in July and August 183 cases and no deaths were reported from the entire Navy, whereas during January, February, and March a series of 1,880 cases treated in various naval hospitals gave a case fatality rate of 4.46 per cent, and in the two stations where outbreaks of the other communicable diseases occurred simultaneously the rate was much higher than this general average. Two hundred and thirty-six cases at Great Lakes resulted in 35 deaths (14.83 per cent), of which 25 were caused by broncho-pneumonia, 6 by lobar pneumonia, and 1 by cerebrospinal fever, and 228 cases at Norfolk were followed by 27 deaths (11.84 per cent), 26 of which were due to broncho-pneumonia and lobar pneumonia and 1 to cerebrospinal fever. A high death rate is closely associated with the prevalence of pneumonia among the personnel exposed to measles. During the same winter months at various stations, both in the North and South, where pneumonia was not prevalent, 920 cases of measles gave a case fatality rate of 1 per cent, and it is to be noted that even in the latter series 8 of the 10 deaths were caused by complicating pneumonia while chronic pulmonary tuberculosis was a contributing cause in the other two.

The statistics given above indicate how important it is to protect the patient with measles from cold. During the acute stage of the disease the skin and mucous membranes are congested and peculiarly sensitive to temperature changes as well as to infection by pathogenic cocci. It is important that exposure to pneumonia patients be prevented. Patients developing secondary pneumonia should be removed promptly from the measles ward. Transfer of measles patients to hospital in cold and windy weather should be avoided when practicable. Measles patients should be kept in bed for at least seven days after the temperature has reached normal.

#### SCARLET FEVER.

The Navy, as a whole, has suffered very little from this disease during the fiscal year. There have been several outbreaks at shore stations as well as in a few ships.

An interesting outbreak of scarlet fever occurred at the naval training station, Great Lakes, Ill. It ran its course in a few days and furnishes a striking example of what may be accomplished by an intelligent and prompt epidemiological investigation. Such a study was made and resulted in the detection of a messman who had not reported sick but who was found to have a mild attack of the disease and to be handling uncooked food in a mess hall. Isolation of the man and contacts resulted in promptly controlling the disease. One other outbreak occurred at Great Lakes during the winter months, covering a period of 11 weeks. The highest number of daily admissions was 35. It was complicated by the presence of German measles, which added confusion to the diagnosis. The disease was finally gotten under control by early detection and isolation of cases and the use of nasal intillations.

During the fiscal year there have been approximately 997 cases of scarlet fever reported from all ships and shore stations. Three hundred and forty occurred in the first half of the year with an annual admission rate of 2.44 per thousand. Six hundred and fifty-seven occurred in the last half of the year with an annual admission rate of 3.34 per thousand.

#### DIPHTHERIA.

The number of cases of diphtheria reported during the fiscal year was approximately 915, with 28 deaths, making an annual admission rate of 2.76 per thousand and a case fatality rate of only 3.06 per cent. This low figure plainly indicates early diagnosis of the disease and prompt use of antitoxin.

Diphtheria is a carrier-borne disease and therefore foci of infection are readily transported from place to place. To prevent this, constant vigilance on the part of medical officers is required so that carriers may be detected and isolated. Much preventive work has been done in this respect as well as in the application of the Schick test to detect nonimmunes and in the administration of toxin-antitoxin to produce immunity. Such preventive measures have undoubtedly kept the incidence of the disease at a low level throughout the Navy as a whole.

However, in spite of preventive measures, a focus of infection which had persisted in the receiving ship at New York for several months, finally developed in March into a decided outbreak, and the disease then spread to other places, including the U. S. S. *Pueblo*, the U. S. S. *Michigan*, and the U. S. S. *Leviathan*. All of these vessels had received drafts from the receiving ship, New York. In all instances prompt suppressive methods were instituted. Carriers were detected and isolated. The Schick test was applied and toxin-antitoxin administered where necessary so that before the end of the year the incidence of the disease was reduced to a few sporadic cases.

#### MUMPS.

This disease, while associated with practically no mortality, has been the cause of much annoyance, inconvenience, and loss of time to the Navy. It is highly communicable, attacking the great majority of available susceptible individuals. Its long period of incu-

bation (at times over three weeks) makes it impossible catch all cases during the period of detention of the recruit. The youthfulness of the average recruit, together with the fact that many are recruited from rural districts where communicable diseases in general are not as common as in cities, accounts to a great degree for the large amount of susceptible material at training stations.

For the fiscal year ended June 30, 1918, there were approximately 16,974 cases of mumps reported from all ships and stations, 5,986 of which developed during the first six months (July to December, inclusive), and 10,988 of which developed during the last six months (January to June, inclusive). This makes an annual rate per 1,000 for the first six months of about 44.44. For the second six months the rate is but very little higher, 56.10, an excellent showing considering the greatly increased size of the Navy and the fact that the latter period contains the months when all diseases spread by nose and mouth secretions have their highest incidence.

#### INFLUENZA, 1917-1918.

Several local outbreaks were reported during the year. In the month of April influenza visited the United States submarine base, San Pedro, Cal., and the naval training station, San Diego, Cal. At the former station there were 120 cases; at the latter 410 cases. The outbreak at San Diego was the most severe. Influenza bacilli were recovered and 12 cases of pneumonia of a virulent type developed. The infection was traced to a Japanese training squadron, in the vessels of which an epidemic of influenza was said to have occurred.

At the San Pedro station influenza bacilli were not identified, but the disease clinically was influenza complicated by streptococcus infection. But few cases had pneumonic complications. Both outbreaks ran a rapid course.

An outbreak of influenza occurred on a naval vessel in May during passage from Gibraltar to an African port, in which 91 cases occurred in a crew of 192.

In April and May the disease was prevalent in the fleet following a cold and rainy period.

In one vessel several weeks later there occurred an epidemic which began June 4 and continued for two weeks, during which time there were 138 cases of influenza, with serious pulmonary complications in 8 per cent of the cases as follows: Three cases of lobar pneumonia, 1 with broncho-pneumonia, 1 with empyema, and 2 with sero-fibrinous pleurisy. There were 2 deaths, 1 from lobar pneumonia and 1 from empyema.

An extensive outbreak occurred in June in a regiment of Marines in Santiago de Cuba. The disease was mild.

#### INTESTINAL PARASITES.

In view of the prevalence of hookworm infection in certain sections of the country and the decreased efficiency consequent upon infection therefrom, it was directed that stools of all recruits coming from these sections be examined at the station or sent to the Naval Medical School.

Of 7,078 stools examined at the school, 622, or 8.9 per cent, were positive.

A number of examinations have been made at naval laboratories located in the various stations as well as in ships.

In view of the fact that men showing marked physical deficiency would not apply for enlistment or would be rejected upon application this percentage is considered to show a very widespread infection.

#### VENEREAL DISEASE.

As pointed out repeatedly in previous reports, students of social problems seeking statistics relative to the prevalence of venereal diseases have always turned to the military and naval services for reliable statistics, since only vague estimates were obtainable from other sources. With the light of publicity beating upon the men of the Army and Navy it was difficult, in the absence of definite statistics for the male civil population, to controvert the general impression that men of the service showed a higher admission rate for venereal diseases than young adult males in civil life.

The figures now obtainable for men examined for induction into the Army under the provision of the selective-draft act indicate most convincingly to all, what medical officers of the Army and Navy have long recognized, that the percentage of men in either service infected with venereal disease is lower year after year than the percentage of males of corresponding ages in civil life. It has been noted in a previous report that the percentage of applicants examined for reenlistment in the Navy and Marine Corps in former years who were rejected for genito-urinary disease of venereal origin was very small, about 0.5 per cent, compared with more than 1.5 per cent of men rejected for this cause upon application for first enlistment. Presented in this way, although the ratio is more than 3 to 1 in favor of the trained service man, the figures are not so striking as those obtained by computations based on the report of the Provost Marshal General, on the first draft, whereby it appears that there were 445,000 syphilitics and 2,225,000 men infected with gonorrhea among registered men who were not called in the first draft.

The medical department of the Navy began 15 years ago to apply prophylactic measures against venereal diseases, and since that time has steadily broadened its campaign into a well-rounded program for the prevention and control of these diseases. In addition to purely medical measures, an increasing amount of attention has been given to the moral and educational phases of the problem.

As individual opinions vary widely as to what steps may be properly undertaken to promote upright living and prevent the incidence of venereal disease, and as there may be some misconception in regard to the attitude of the Navy in this matter, it seems fitting to outline the position taken by the bureau. Medical officers, both afloat and ashore, are charged with the duty of warning all persons in the naval service, and particularly the newer, younger men, of the danger of acquiring venereal disease through illicit intercourse and of the serious consequences of such disease. In the instruction given on health and personal hygiene they are required to emphasize the sin

of impurity and the necessity of pure living for the fullest enjoyment of health and happiness and for the best and most loyal service to the country. In addition to setting up this standard of conduct, medical officers are enjoined to enforce early and appropriate treatment for venereal disease whenever discovered, as the result of periodic inspections of the crew authorized by the commanding officer or otherwise. However, men returning from liberty to ship or station shall have the right to report exposure to infection and to request prophylactic treatment. Men who in spite of instruction and entreaty disregard the moral law and the laws of health, who do not even endeavor by prophylaxis to ward off the injurious effect of their misconduct and later develop disease, are to be reported to the commanding officer and regarded as harboring concealed diseases. Men with venereal disease are not to be recommended for liberty while in the contagious period, except for the most imperative personal or business necessities, the aim being to keep them out of civil communities and facilitate prompt and continuous treatment. Whenever the exact source of contagion can be ascertained, it is to be reported to such authorities as have the power to deal with the female carriers of disease in the civil population.

Provisions have been made whereby no man in the Navy may be allowed to remain ignorant or misinformed as to the nature and proper care of each of the venereal diseases and of the serious consequences which may follow infection.

While medical prophylactic treatment is to be applied early and efficiently in all cases when exposure is admitted, the line is drawn sharply between such early treatment on board ship or within the naval station and the issue of preventatives for individual use.

This year marks the awakening of the moral conscience of the Nation to recognition of the appalling toll of misery, physical damage, suffering on the part of innocent persons, economic losses, and burdens upon the State necessitated by the care of the disabled, sick, insane, and feeble-minded, inflicted everywhere upon communities as a result of the widespread prevalence of these diseases and the associated intolerable social conditions.

Aroused by demands imposed by military and naval authorities looking to the protection of the armed forces against infection, and through the activities of a number of pioneer workers in the field of social hygiene the interests and resources of the entire country have been mobilized during the past year, with the result that a nation-wide campaign is now being waged for the prevention and control of venereal diseases throughout the civil population and not only the disease but the underlying conditions as well are being attacked from all angles. Fortunately the problem has been recognized everywhere as essentially related to the public health, and all plans of attack are being based on the practical methods of preventive medicine, which do not fail to make the fullest use of educational measures, moral suasion, appeals to legislative bodies, and enforcement of existing laws, and provide facilities for preventive medical treatment, dispensaries for diagnosis and treatment of both males and females, together with the detention or quarantine of infected prostitutes and other carriers of disease. Already 39 of the States have passed appropriate laws making venereal diseases notifiable.

recognizing them as communicable diseases dangerous to the public health, and providing for their prevention and control under the direction of State and local health officials.

Mention should be made of the efforts of the splendid women in the neighborhood of the naval training station at Great Lakes, in the suburbs of Boston, in Newport, New York, Philadelphia, and in other places too numerous to mention, who have arranged entertainments and taken the men of the Navy into their homes in the kindest and most practical way in a sincere attempt to provide social diversion flavored with the essence of real democratic home life.

Thinking men and women have joined the campaign in steadily increasing numbers, and the movement has culminated in the passage of an act by the Congress of the United States creating the Interdepartmental Social Hygiene Board and a Division of Venereal Diseases in the Bureau of the United States Public Health Service, together with appropriations amounting in all to \$4,100,000 for expenditure in the next two years. Of this amount \$1,000,000 is to be expended under the joint direction of the Secretary of War and the Secretary of the Navy to assist the various States in controlling venereal diseases for the protection of the military and naval forces.

Two hundred thousand dollars is appropriated for maintaining the Division of Venereal Diseases in the Public Health Service, and \$100,000 to be used under the direction of the Interdepartmental Board for any purpose for which any of the appropriations made by the act are available.

The duties of the Interdepartmental Social Hygiene Board are to recommend the rules and regulations for the expenditure of moneys allotted to the States under the direction of the Secretary of War and the Secretary of the Navy; to select the institutions for research and educational purposes; to recommend to the secretaries such general measures as will promote correlation and efficiency in carrying out the purposes of the act and to direct the expenditure of the sum of \$100,000 for general purposes. The board shall meet at least quarterly and shall elect annually one of its members as chairman. The bill contemplates the care of civilian persons whose detention, isolation, quarantine, or commitment to institutions may be found necessary for the protection of military and naval forces.

The Interdepartmental Social Hygiene Board has been organized with the following membership: The Secretary of War, the Secretary of the Navy, the Secretary of the Treasury, Lieutenant Colonel W. F. Snow, United States Army, representing the Surgeon General of the Army; Lieutenant Commander J. R. Phelps, Medical Corps, United States Navy, representing the Surgeon General of the Navy; and Assistant Surgeon General C. C. Pierce, United States Public Health Service, in charge of the Division of Venereal Diseases, representing the Surgeon General of the United States Public Health Service.

The Navy section of the Social Hygiene Division of the commission is deserving of special mention for its constant and manifest desire to assist the bureau to the utmost in the various activities within its field of work. The director and the assistant director of the section have been energetic and zealous in putting into effect measures of an educational nature in cooperation with or at the suggestion of the bureau and in furnishing such material as has been



desired by various medical officers of the Navy in their work at naval stations and on board ship. Specific reference to this work was made on page 34.

In the past, from the preventive medicine standpoint, the Navy's program was admittedly incomplete since means were not available for applying effective measures for prevention and control directly to the female carriers of venereal diseases, but it is now possible to attack the problem openly in the civil community, which, of course, represents the source of all the damage inflicted upon the service by these preventable diseases, and it appears that the work which the medical department of the Navy has been carrying on for years is at last being augmented by a comprehensive scheme of attack which has been taken up with vigor and enthusiasm in nearly all of the States.

The United States Public Health Service is now in a position, with funds available and with the new Division of Venereal Diseases added to its organization, to correlate the activities of State health organizations and unofficial bodies in the different States by developing an educational and medical program which can be applied effectively in all parts of the country. This program will be developed in harmony with that of the Interdepartmental Social Hygiene Board, which will insure effectiveness and prevent reduplication of effort and at the same time secure the greatest possible assistance to the Army and Navy. The United States Public Health Service in connection with this work already has officers in 32 States. Thirty-nine States have adopted laws based wholly or in part upon the regulations drawn up by the Division of Venereal Diseases under which distribution of the respective allotments of the million dollars expendable this year will be made to the States. These States have recognized venereal diseases as communicable and dangerous to the public health and have made them notifiable by law. The remaining States, with possibly one or two exceptions, expect to do so in the immediate future. Thirty-two States have been induced to pass laws making it illegal for druggists to dispense nostrums and remedies for the treatment of venereal diseases.

Plans are under way to secure the cooperation of all State and county medical societies and to enlist the services of influential citizens and societies everywhere.

Arrangements have been made to start clinics in 102 different cities under the joint auspices of the United States Public Health Service and the American Red Cross. Twenty-five such clinics are now in active operation in extra-cantonment zones. Five of them have been established in areas adjacent to the naval stations at Portsmouth, N. H., New London, Conn., Norfolk, Va., and Charleston, S. C., to assist in the enforcement of measures for the control of venereal diseases in the civilian population. The American Red Cross has appropriated the sum of \$100,000 for this purpose. At the close of the fiscal year 89,460 treatments had been administered to 24,848 individuals and 2,819 prostitutes infected with venereal diseases had been placed in detention for treatment, the Public Health Service supplying medical attendants and the Red Cross nurses and equipment. The Public Health Service and the Red Cross have sent arsphenamine free to these clinics to the extent of 20,000 doses.

The admission rate for venereal diseases including syphilis, gonorrhea, and chancroid infections, for the entire Navy during the fiscal year ended June 30, 1918, was 105.77, against the average rate of 157.9 for the nine calendar years 1909 to 1917, inclusive. Undoubtedly a part of the decrease can be attributed to interdiction of alcoholic liquors for men in uniform and the declaration of zones around numerous naval stations, but it is also clear that renewed efforts in the service in conjunction with the elaborate program now being put into effect with ever increasing energy in civil communities are accomplishing uniformly good results for the Navy ashore and in home waters, and it may be said that weekly computations, on the whole, indicate that continued improvement in rates can be expected during the coming year. Because of the long course of this disease, the accuracy in diagnosis which is afforded by complement fixation tests and the greater fear in which it is logically held it is probable that a smaller percentage of the cases of syphilis have escaped detection than cases of gonorrhea both in the past and during the present year. There has been only a slight reduction in the admission rate for gonorrhea. While figures can not be produced to substantiate the conclusion it is very probable that a higher percentage of gonorrheal infections has been detected this year than in previous years in view of the fact that several transfers of men from one place to another during the successive stages of training have occurred during the year for the great majority of the present personnel and each transfer has included an examination for venereal disease; moreover, routine and surprise inspections have been made at shore stations. Formerly the instructions governing such inspections applied only to ships.

In general, reports for the force afloat have been surprisingly good. For example, recently a group of 41 ships of the fleet, representing an aggregate complement of 28,157 men, reported an average rate of 51.22 for a period of two successive weeks.

Such reports, of course, are merely side lights upon the situation. On the other hand, it should be said that difficulties encountered in the numerous ports abroad, including those in the Mediterranean, over which the naval authorities have no control, are responsible for many infections among the crews of vessels carrying cargo or acting independently. Early medical treatment administered on board ship after many hours have elapsed since exposure is manifestly impotent to prevent the development of many infections.

The effect of such instances in making for a higher admission rate for the whole service is out of proportion to such effect before the war and it should be taken into consideration as indicating that statistics for the year would have registered an even more striking reduction in rates if social conditions in foreign ports were under as good control as they are already in the United States.

The following table includes admission rates for the previous nine calendar years and those for the fiscal year ended June 30, 1918. It must be borne in mind that the rate for chancroid is not accurately indicative of the incidence of this infection since a great many of the patients finally admitted to the sick list with syphilis are first admitted with the diagnosis chancroid. Rates for years previous to 1909 have not been included because only since 1908 have instruc-

tions to medical officers required that every person infected with a venereal disease be admitted to the sick list. If the patient's condition is such that he need not be excused from duty the admission is "for record only," and he is forthwith discharged to duty.

	Comple- ment.	Syphilis.	Gonorrhea.	Chancroid	All venereal diseases.
1909.....	57,172	25.81	102.51	63.39	191.71
1910.....	58,340	22.54	103.90	63.32	189.76
1911.....	61,399	27.11	92.15	57.07	176.33
1912.....	61,897	23.00	87.29	59.26	169.55
1913.....	65,926	21.94	80.69	40.46	143.09
1914.....	67,141	19.83	84.94	58.05	162.82
1915.....	68,075	21.35	87.91	42.30	151.56
1916.....	69,294	22.25	82.70	43.12	148.07
1917.....	245,590	10.06	54.73	18.60	88.71
Fiscal year 1918.....	318,240	12.28	69.39	24.10	105.77

### TYPHOID FEVER.

During the year 1917 there were reported 66 cases of typhoid fever with 1 death. The case fatality rate reached the extraordinarily low figure of 1.5 per cent. The annual admission rate was 0.26 per thousand and the death rate 0.004 per thousand. A comparison with the last 12 years is shown in the following table:

Year.	Number of cases.	Number of deaths	Case fatality rate per 100.	Annual admission rate per 1,000.
1905.....	172	11	6.4	4.16
1906.....	230	14	6.0	5.40
1907.....	249	17	6.8	5.37
1908.....	176	10	5.6	3.22
1909.....	149	17	8.9	3.35
1910.....	193	10	5.1	3.30
1911.....	222	15	6.7	3.61
1912.....	57	2	3.5	.92
1913.....	22	4	18.1	.31
1914.....	13			.19
1915.....	18	1	5.5	.26
1916.....	17			.23
1917.....	66	1	1.5	.26

Previous to the year 1912 typhoid fever had been more or less prevalent in the Navy. During the latter part of 1911 typhoid prophylaxis was introduced, followed by a drop in the admission rate from 3.61 per thousand in 1911 to 0.92 per thousand in 1912. Since 1912 the admission rate has averaged only 0.25 per thousand for the 5-year period from 1913 to 1917. This is in marked contrast to the admission rates for the 5-year period 1907 to 1911, before typhoid prophylaxis was introduced. This period gives an average admission rate of 3.79 per thousand.

The low admission rates for the last five years must be attributed largely to the typhoid prophylaxis which is administered to all men shortly after enlistment or reenlistment.

The Navy mortality for this disease, 0.004 per thousand in 1917 is in marked contrast to that in the registration area of the United States, which for 1916 was 0.133 per thousand.

## POISONING BY TRINITROTOLUENE.

There have been 10 cases of trinitrotoluene poisoning among civilians employed by the Ordnance Department of the Navy, Norfolk, Va., but the symptoms were mild and recovery was relatively prompt. No cases of poisoning were reported from Iona Island. Minute instructions have been given to this class of workers and printed directions have been put up in the shops regarding precautions to be taken. At the torpedo station, Newport, R. I., no serious consequences have been noted from the handling of trinitrotoluene. After work of this type had been going on for one year there were a few cases of superficial, local skin irritation.

*Trachoma.*

Year.	Average complement.	Admissions.
1912.....	61,897	3
1913.....	65,926	8
1914.....	67,141	8
1915.....	68,075	31
1916.....	69,294	12
1917.....	245,580	37

*Tuberculosis.*

	Admitted.		Deaths.	Sick days.
	Number.	Rate per 1,000.		
1909.....	311	5.43	40	58,984
1910.....	349	5.96	44	65,443
1911.....	319	5.19	48	64,685
1912.....	264	4.26	32	57,723
1913.....	325	4.92	30	67,423
1914.....	295	4.39	38	80,327
1915.....	253	3.71	36	82,233
1916.....	287	4.14	39	78,889
1917.....	796	3.24	61	100,377

*Total admissions and readmissions to sick list—Deaths and sick days per 1,000.*

	Per 1,000 of personnel.		
	Admissions and re-admissions, all causes.	Deaths.	Total sick days.
Average, years 1901-1910.....	897.35	5.38	10,871.12
1912.....	787.46	4.08	9,449.59
1913.....	760.03	3.82	10,041.41
1914.....	886.58	4.18	10,862.26
1915.....	955.91	4.48	11,402.17
1916.....	998.22	4.83	11,674.18
1917.....	795.32	4.36	10,421.06

*Disabilities having the greatest number of sick days during 1917 as compared with the years 1913, 1914, 1915, and 1916.*

	1913	1914	1915	1916	1917
Syphilis.....	1	2	2	2	6
Tuberculosis, chronic pulmonary.....	2	1	1	1	8
Gonorrhea (urethral).....	2	2	3	3	4
Appendicitis.....	4	5	6	9	10
Scalp.....	5	6	5	8	1
Measles.....	6	12	15	18	2
Otitis.....	7	4	4	5	5
Scabies, inguinal.....	8	8	9	6	11
Scarlet.....	9	9	12	11	14
Otitis media.....	10	10	11	10	15
Arthritis.....	11	7	8	12	7
Scarlet.....	12	11	10	4	18
Scarlet.....	13	18	13	15	12
Pneumonia.....	14	14	14	14	9
Influenza.....	15	15	7	7	8

*Leading causes of death for the past five years in the Navy.*

	1913	1914	1915	1916	1917
Pneumonia, all forms.....	21	33	23	18	200
Drowning.....	32	42	51	74	198
Cerebro-spinal fever.....	6	1	4	1	112
Tuberculosis, all forms.....	32	42	51	39	61
Septicemia.....	4	1	1	5	83
Scarlet, suppurative.....	1	3	1	5	82
Wounds, gunshot.....	19	30	13	27	47
Fracture of skull.....	10	9	14	19	35
Exhaustion from overexposure.....	5	1	4	1	30
Multiple injuries, extreme.....	4	4	5	5	29
Septicemia.....	8	13	13	9	14
Septicemia, all forms.....	12	6	16	11	12

### RECRUITING.<sup>1</sup>

*The principal causes of rejection of candidates for original enlistment are as follows:*

	Navy.	Marine Corps.	Naval Reserve.
Errors of refraction.....	29,945	4,845	5,850
Underweight.....	31,531	2,731	4,204
Defective teeth.....	13,884	2,361	2,505
Flat feet.....	11,072	3,374	2,041
Scars.....	9,540	1,681	797
Heart affections.....	7,608	2,856	1,900
Underheight.....	6,712	1,069	605
Color perception defective.....	5,733	1,202	953
Genito-urinary (venereal).....	5,647	1,101	530
Scars; or tendency to.....	4,855	1,354	1,165
Defective hearing.....	4,267	839	284
Poor physique.....	3,352	840	254

<sup>1</sup> See also Table 7 under Statistics.

## NECROLOGY.

It is with genuine sorrow that I have to record the loss to the service, by death, of the following officers of the medical corps:

Medical Director N. M. FERELEE, U. S. N., ret.....	November 25, 1917
Surgeon R. B. WILLIAMS, U. S. N.....	December 8, 1917.
Surgeon H. A. DUNN, U. S. N.....	December 13, 1917
Medical Director R. C. PERSONS, U. S. N., ret.....	March 3, 1918.
Medical Inspector W. S. HOEN, U. S. N.....	July 7, 1918.

The following named officers, deceased, lost their lives through direct participation in the war:

Assistant Surgeon D. W. QUEEN, U. S. N., attached to U. S. S. <i>Cassin</i> , died of epidemic cerebro-spinal meningitis at Queenstown, Ireland.....	November 19, 1917.
Passed Assistant Surgeon L. C. WHITESIDE, U. S. N., senior medical officer of the U. S. S. <i>President Lincoln</i> , when this vessel was sunk by a torpedo.....	May 31, 1918.
Assistant Surgeon J. B. ASPER, U. S. N., attached to the U. S. S. <i>Cyclops</i> , which was lost at sea.....	June —, 1918.
Dental Surgeon W. E. OSBORNE, U. S. N., killed in action while serving with the Sixth Regiment U. S. Marine Corps, France.....	June 6, 1918.

The officers named below died of influenza or pneumonia while discharging their professional duties during the recent widespread epidemic of influenza:

Lieutenant (J. G.) G. T. COURTENAY, Med. Corps, U. S. N. R. F.....	September 23, 1918
Lieutenant J. L. FISHER, Med. Corps, U. S. N.....	September 24, 1918
Lieutenant (J. G.) J. A. MCCARTHY, Med. Corps, U. S. N. R. F.....	September 26, 1918
Lieutenant G. M. NEUBERGER, Med. Corps, U. S. N. R. F.....	September 27, 1918
Lieutenant B. E. SUMMERS, Med. Corps, U. S. N.....	September 28, 1918
Lieutenant (J. G.) M. J. CARROLL, Med. Corps, U. S. N. R. F.....	September 29, 1918
Lieutenant (J. G.) J. L. G. KING, Dental Corps, U. S. N.....	September —, 1918

## HONORS AND DISTINCTIONS.

On June 12, 1918, the degree of Doctor of Science was conferred upon the Surgeon General of the Navy by the Northwestern University.

In September, 1918, Commander H. F. Strine, Medical Corps, United States Navy, was elected Professor of the Principles and Practice of Surgery at Georgetown University, Washington, D. C., and Acting Chief of the Department of Surgery at the University Hospital.

The following officers were awarded the Distinguished Service Cross for their performance of duty in France:

Lieutenant Commander P. T. Dessez, Medical Corps, United States Navy.  
 Lieutenant Commander W. G. Farwell, Medical Corps, United States Navy.  
 Lieutenant Commander W. H. Michael, Medical Corps, United States Navy.  
 Lieutenant Commander J. T. Boone, Medical Corps, United States Navy.  
 Lieutenant Commander O. D. King, Medical Corps, United States Navy.  
 Lieutenant R. O'B. Shea, Medical Corps, United States Navy.  
 Dental Surgeon W. G. Osborne, United States Navy.<sup>1</sup>

W. C. BRAISTED.

<sup>1</sup> The honor was awarded posthumously.

## STATISTICS.

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### PREFACE.

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The basis for all medical department statistics lies in the forms used in connection with the preparation and keeping of the "Health Record," which deals with the physical requirements and health of the personnel of the Navy and Marine Corps.

*Table No. 1.*—Detailed statement of diseases and injuries for the calendar year.

(a) This table gives an alphabetical list of disabilities, the Navy class and international numbers (from the Navy nomenclature), shows the method of taking up and disposing of all cases, the number of sick days or time lost to the service (from Form F cards), and a summary with comparative data for 10 previous years (from Form K).

(b) The class number (Roman numeral) refers to the classification of the Navy nomenclature, as follows:

- I. Diseases of blood.
- II. Diseases of circulatory system.
- III. Diseases of digestive system.
- IV. Diseases of ductless glands and spleen.
- V. Diseases of ear.
- VI. Diseases of eye and adnexa.
- VII. Diseases of genito-urinary system (nonvenereal).
- VIII. Diseases of infective type (nonvenereal).
- IX. Diseases of infective type (venereal).
- X. Diseases of lymphatic system.
- XI. Diseases of mind.
- XII. Diseases of motor system.
- XIII. Diseases of nervous system.
- XIV. Diseases of respiratory system.
- XV. Diseases of skin, hair, and nails.
- XVI. Hernias.
- XVII. Miscellaneous diseases and conditions.
- XVIII. Parasites (fungi and certain animal parasites).
- XIX. Tumors.
- XX. Injuries (wounds, etc.).
- XXI. Poisons.

(c) The international number refers to the classification of diseases and injuries prepared by the International Commission (Paris, July 1 to 8, 1909).

(d) In the case of wounds, etc., and poisons, key letters immediately following the title (e. g., Abrasion, unqualified "G") are given for classification of the cause of such injury, and are interpreted as follows:

- A. Suicidal.
- B. Homicidal.
- C. Conflagration. Includes all injuries incident to general conflagration. Burns otherwise received are not classed hereunder.
- D. Accidental drowning or submersion.
- E. Traumatism by firearms, accidental. To include all injuries caused by the projectile, the blast from great guns, or from the piece when fired.
- F. Traumatism by explosion. To include powder, gas, compressed air, or steam explosions; also the explosion of a gun.
- G. Traumatism by fall.
- H. Traumatism by machines.
- I. Traumatism by other crushing.
- J. Traumatism due to athletic sports.
- K. Casualty in action.
- L. Traumatism due to other external violence not classified above.

(e) Figures from previous years for the preparation of the summary are as follows:

Year.	Average complement.	Number of cases. <sup>1</sup>	Deaths.	Invalided from service.	Sick days.
1905.....	42,520	43,714	241	1,117	518,46
1907.....	46,336	40,575	263	1,324	495,25
1908.....	52,913	46,380	305	1,578	543,65
1909.....	57,172	51,341	286	1,704	578,55
1910.....	58,340	50,782	263	1,556	613,65
1911.....	61,399	52,953	282	1,559	671,25
1912.....	61,897	50,565	282	1,345	645,62
1913.....	65,826	50,106	252	1,319	682,65
1914.....	67,141	59,526	281	1,426	729,25
1915.....	68,075	66,074	305	1,272	776,25

<sup>1</sup> Number of cases includes remaining from last year, admitted, and readmitted.

**Table No. 2.—Distribution of diseases and injuries among occupational groups for the calendar year.**

(a) This table shows by occupational groups the class of disability, average complement, number of admissions, deaths, suicides, invalided from service (with rates per 1,000), sick days, and a damage figure; also a total for all occupations giving admissions, deaths, invalided from service (with rates per 1,000 based on the entire service complement), sick days, and a damage figure.

(b) The average complement for each occupational group is obtained from the Navy Year Book, except in the case of prisoners, which is obtained from the office of the Judge Advocate General of the Navy, and grouped as follows:

Officers: Line, medical, dental, pay, chaplain, professor of mathematics, naval constructor, civil engineer, chief and warrant, and Marine Corps.

Midshipmen: All classes of this personnel.

Electricians: All classes of this rating.

Engine room: Machinist's mate and oiler.

Fireroom: Fireman and water tender.

All other artificers: Blacksmith, boiler maker, carpenter's mate, coppersmith, painter, plumber and fitter, printer, sailmaker's mate, ship fitter, and shipwright.

Clerical: Storekeeper and yeoman.

Culinary: Baker, commissary steward, cook, messman, ship's cook, and steward.

Hospital Corps: All ratings of this corps.

Marines (enlisted): All enlisted ratings except Marine Band and drummer and trumpeter.

Musicians: Bandmaster, bugler, drummer, leader, musician, and trumpeter.

Prisoners: Detentioners and general court-martial prisoners.

Apprentices: Apprentice seamen.

Ordnance: Gunner's mate and turret captain.

All other deck ratings: Boatswain's mate, coxswain, landsman, master-at-arms, mate, quartermaster, seaman, and seaman-gunner.

(c) Number of admissions, deaths, suicides, invalided from service and sick days obtained from Form F cards.

(d) Rate per 1,000 is based on the average complement at the heading for each group.

(e) Damage is in terms of individuals whose loss of service by sickness, discharge from service, or death would be represented as continuous throughout the year. Damage, at the bottom of the table, is based on the average complement and figures under each group and for all occupations, at the right of the table, for the average complement and figures under "Totals for all occupations."

Damage is estimated by adding the death rate to the invalided rate and dividing this sum by 20 (see Gatewood's Hygiene); to this product add the percentage of sick, then multiply this sum by the average complement divided by 100.

Death rate and invalided rate is obtained by dividing the number of deaths or invalided by the average complement divided by 1,000.

Percentage of sick is obtained by dividing the daily average of patients by the average complement and multiplying this product by 100.



Daily average of patients is obtained by dividing the sick days by the number of year days.

*Table No. 3.*—Casualties in the Navy and Marine Corps for the calendar year. This table is a summary of deaths, showing the cause, number, and the distribution among the officers and men.

*Table No. 4.*—Discharged from the service by reason of physical disability during the calendar year. This table is a summary of those invalided from the service or retired on account of physical disabilities, showing the disability, number, and distribution among the officers and men.

*Table No. 5.*—Surgical operations for the calendar year. This table is a summary of surgical operations performed, showing the condition for which the operation was performed, result of the operation, and the anesthetic employed.

*Table No. 6.*—Dental operations for the calendar year. This table shows a summary of dental operations and treatment, together with the number for each kind.

*Table No. 7.*—Recruiting statistics for the Navy and Marine Corps for the calendar year. This table is a summary of persons applying, examined, and enlisted, showing the total number of applicants, total enlisted, number examined by the medical officer, number rejected by the medical officer for physical disqualifications, in the Navy for original and reenlistment, in the Marine Corps for original and reenlistment; also accepted applicants reexamined, and the number examined, etc., for all classes of the Naval Reserve and for civilian cruise.

A list of the principal causes of rejection by the medical officer is also appended.

TABLE 1.—DETAILED STATEMENT OF DISEASES AND INJURIES FOR THE CALENDAR YEAR 1917.

Diagnoses.	Taken up as—			Disposition.							Number of sick days this year.
	Remaining from last year.	Admitted.	Readmitted.	Duty.	Diagnosis changed.	Died.	Invalided from service.	Ran.	Transferred.	Continued to next year.	
DISEASES.											
Abscess about rectum (Class III, Inter. 110B).....	6	164	95	158	14	.....	2	1	80	10	3,684
Abscess about urethra (Class VII, Inter. 125).....		9	4	7	2	.....			4		165
Abscess of axilla (Class X, Inter. 84).....		83	32	78	1	.....			31	5	1,540
Abscess of brain (Class XIII, Inter. 60).....		3	1				3	1			103
Abscess of Cowper's glands (Class VII, Inter. 127).....		2		2							17
Abscess of eye and adnexa (Class VI, Inter. 75C).....		6	1	7							28
Abscess of kidney (Class VII, Inter. 122).....		3	3	2		1			2	1	142
Abscess of kidney, perinephritic (Class VII, Inter. 122).....		3	5	2					5	1	192
Abscess of larynx (Class XIV, Inter. 87).....		3		2						1	52
Abscess of liver (Class III, Inter. 115).....		1				1					6
Abscess of lung (Class XIV, Inter. 98).....	1	9	2	3	2	3			3	1	280
Abscess of lymph-node (Class X, Inter. 84).....	1	61	36	59	3				32	4	1,696
Abscess of nasal septum (Class XIV, Inter. 86).....		5	1	4					1	1	58
Abscess of pharynx (Class III, Inter. 100).....		40	14	34					15	5	493
Abscess of prostate gland (Class VII, Inter. 126).....	1	3	2	5	1						145
Abscess of salivary gland (Class III, Inter. 98B).....	1	5	8	6	3				4	1	313
Abscess of scrotum (Class VII, Inter. 127).....		13	5	13	1				4		154

TABLE 1.—DETAILED STATEMENT OF DISEASES AND INJURIES FOR THE CALENDAR YEAR 1917—Continued.

Diagnoses.	Taken up as—		Disposition.							Number of sick days this year.	
	Remaining from last year.	Admitted.	Readmitted.	Duty.	Diagnosis changed.	Died.	Invalided from service.	Ran.	Transferred.		Continued to next year.
DISEASES—Continued.											
Abscess of tongue (Class III, Inter. 99B).....		1	1	2							19
Abscess, subphrenic (Class III, Inter. 118).....		1								1	25
Abscess, unqualified (Class VIII, Inter. 144).....	29	2,612	526	2,539	63			1	452	112	28,245
Acne (Class XV, Inter. 145C).....	1	24	18	27					15	1	88
Adenoids (Class XIV, Inter. 86).....	1	32	23	30	2				21	4	689
Adenoma (Class XIX, Inter. 46).....		6	5	5	1				4	1	162
Adhesions about gall bladder (Class III, Inter. 115).....		5	4	1			4		4		183
Adhesions about stomach (Class III, Inter. 117).....		3	1	2	1		1				182
Adhesions of peritoneum (Class III, Inter. 117).....	3	127	116	66	6		35		95	44	3,518
Adhesions, preputial (Class VII, Inter. 137).....		10		10							5
Aerogenous capsulatus infection (Class VIII, Inter. 20).....		2	1	1		1			1		34
Albuminuria (Class VII, Inter. 120).....		15	11	9	6		1		10		306
Alopecia areata (Class XV, Inter. 145C).....		1		1							0
Amaurosis (Class VI, Inter. 75C).....		7	8	5	2		4		3	1	229
Amblyopia (Class VI, Inter. 75C).....		31	21	11	1		18		17	5	768
Amputation stump (Class XVII, Inter. 149).....	1	24	16	7			17	1	14	2	713
Amputonia congenita (Class XII, Inter. 149).....		1					1				28
Anemia of brain (Class XIII, Inter. 74).....		2	1	2					1		6
Anemia, pernicious (Class I, Inter. 54).....		3	3	1			1		3	1	289
Anemia, simple (Class I, Inter. 54).....	4	26	15	21	6		3		14	1	686
Anemia, splenic (Class I, Inter. 54).....		1	2				1		2		129
Aneurism, (Class II, Inter. 81).....		9	7	3		1	2		7	2	361
Angina ludovici (Class III, Inter. 10).....		4	1	2	1				1	1	56
Angina pectoris (Class II, Inter. 80).....		11	8	5	3	2	2		6	1	226
Angioma (Class XIX, Inter. 46).....		1	1	1					1		5
Angioneurotic edema (Class XIII, Inter. 74).....	1	9	5	10			1		4		111
Ankylosis of joint (Class XII, Inter. 147).....	2	59	34	20	2		36		27	10	1,421
Ankylosis of ossicles (Class V, Inter. 76).....		5	3	1			2		2	3	197
Anti-inoculation, unqualified (Class XVII, Inter. 189A).....	1	490	50	489	6				45	2	1,343
Aortitis (Class II, Inter. 81).....		5	1	1	1		3		1		167
Aphasia (Class XIII, Inter. 74).....		4	4	2	1				4	1	41
Apoplexy (Class XIII, Inter. 64).....		2	3	1	2				2		77
Appendicitis, acute (Class III, Inter. 108).....	39	1,207	806	1,064	103	8	2	4	761	110	28,397
Appendicitis, chronic (Class III, Inter. 108).....	27	415	349	410	29		5		290	57	12,134
Arterial sclerosis, cerebral (Class XIII, Inter. 51).....			3				1		2		41
Arterial sclerosis, general (Class II, Inter. 81).....		20	21	12		1	8		17	3	1,146
Arthritis, acute (Class XII, Inter. 147).....	2	304	177	250	48	3	2		143	37	6,500
Arthritis, chronic (Class XII, Inter. 147).....	12	111	100	60	18		46		81	13	4,177
Arthritis, deformans (Class XII, Inter. 48).....		4	4	2			2		2	2	304

TABLE 1.—DETAILED STATEMENT OF DISEASES AND INJURIES FOR THE CALENDAR YEAR 1917—Continued.

Diagnoses.	Taken up as—			Disposition.						Number of sick days this year.	
	Remaining from last year.	Admitted.	Readmitted.	Duty.	Diagnosis changed.	Died.	Invalided from service.	Ret.	Transferred.		Continued to next year.
DISEASES—Continued.											
Ascariasis (Class XVIII, Inter. 367).....	1	51	10	56					6		436
Asthma (Class XIV, Inter. 95).....	2	100	126	74	9		42		90	18	3,516
Astigmatism (Class VI, Inter. 78C).....	5	172	73	126	6		30	1	56	9	2,405
Betosis (Class XIII, Inter. 74).....		1	2				1		2		41
Diverticulum of bladder (Class VII, Inter. 124).....		5	5	2			1		5	1	111
Atrophy of bone or cartilage (Class XII, Inter. 146).....		3	1				3		1		80
Atrophy of liver, acute yellow (Class III, Inter. 111).....		1				1					5
Atrophy of muscle (Class XII, Inter. 149).....		24	7	3	2		13		7	6	433
Atrophy of optic nerve (Class VI, Inter. 75C).....		6	3	1	1		3		3	1	26
Atrophy of testicle (Class VII, Inter. 127).....		5	4	3			2		4		99
Botulism, intestinal (Class III, Inter. 110B).....	5	576	64	573	10		1		53	8	2,380
Proctitis (Class VII, Inter. 127).....		36	20	51	6				15	4	796
Blastomycosis (Class XVIII, Inter. 25B).....		1	1	1					1		22
Brucellosis (Class VI, Inter. 75C).....	1	13	4	9	2				4	3	117
Bradycardia (Class II, Inter. 85).....		3	1	3					1		30
Bromidrosis (Class XV, Inter. 145C).....		2	1	2					1		11
Bronchiectasis (Class XIV, Inter. 90).....	1	5	5	3			1		6	1	491
Bronchitis, acute (Class XIV, Inter. 90).....	45	4,764	1,068	4,808	234			1	913	251	41,658
Bronchitis, chronic (Class XIV, Inter. 90).....	15	411	328	287	87		62		272	46	11,958
Bronchitis, fibrinous (Class XIV, Inter. 90).....		4		2					2		11
Bursitis, acute (Class XII, Inter. 149).....	1	124	35	115	7				31	7	1,318
Bursitis, chronic (Class XII, Inter. 149).....	2	51	41	43	5		7		35	4	1,023
Callosities (Class XV, Inter. 145C).....		4	1	3					1	1	80
Calculus in bladder (Class VII, Inter. 122).....		8	3	4	2				3	2	200
Calculus in ureter, impacted (Class VII, Inter. 123).....		5	5	7					2	1	93
Calculus in urethra, impacted (Class VII, Inter. 123).....		2		1					1		56
Callosities (Class XV, Inter. 145C).....		17	17	19			2		11	2	370
Carbuncle (Class VIII, Inter. 143).....		112	34	109	3		1		29	4	1,393
Carcinoma (Class XIX, Inter. 38-45).....	1	8	5	1	1	8			3	1	327
Cardiospasm (Class III, Inter. 108).....		1	2		1				2		8
Caries of tooth (Class III, Inter. 90A).....	1	96	38	93			11		29	2	910
Carrier, diphtheria bacillus, (Class VIII, Inter. 95).....		89	37	62	1				38	25	967
Cataract (Class VI, Inter. 75C).....	4	15	22	9	2		10		16	4	1,417
Celinitis (Class VIII, Inter. 144).....	13	1,212	380	1,171	42				323	69	17,586
Cerebro-spinal fever (Class VIII, Inter. 51a).....		373	330	111	30	112	65	2	317	66	26,019
Cerumen, accumulation of (Class V, Inter. 76).....		5	1	5	1						17
Chalazion (Class VI, Inter. 75).....		22	11	21	1				9	2	145
Chancre (Class IX, Inter. 38A).....	19	4,568	745	4,626	177			2	418	109	19,670
Chancre of lymph-node (Class IX, Inter. 38A).....	25	412	584	680	67		1	2	218	53	15,089

TABLE 1.—DETAILED STATEMENT OF DISEASES AND INJURIES FOR THE CALENDAR YEAR 1917—Continued.

Diagnoses.	Taken up as—			Disposition.							Number of sick days this year.
	Remaining from last year.	Admitted.	Readmitted.	Duty.	Diagnosis changed.	Died.	Invalided from service.	Ran.	Transferred.	Continued to next year.	
DISEASES—Continued.											
Chicken pox (Class VIII, Inter. 19).....	6	169	119	138	12				117	27	2,322
Chilblain (Class XV, Inter. 145C).....		13	3	7	1				5	3	170
Cholangitis, acute (Class III, Inter. 115).....	5	241	85	226	5	1			81	18	3,500
Cholangitis, chronic (Class III, Inter. 115).....	1	3	2	4					2		120
Cholecystitis, acute (Class III, Inter. 115).....	2	78	36	74	8	2	1		29	2	1,720
Cholecystitis, chronic (Class III, Inter. 115).....	1	15	9	9	4	1			10	1	290
Cholelithiasis (Class III, Inter. 114).....	6	38	28	29	5		4		31	3	1,600
Chondritis (Class XII, Inter. 149).....		1							1		1
Chondroma (Class XIX, Inter. 46).....		4	3	3					3	1	40
Chorea (Class XIII, Inter. 72).....	1	25	21	4	2		18		22	1	600
Chorea, chronic progressive (Class XIII, Inter. 74).....		2	1		1		1		1		15
Choroiditis (Class VI, Inter. 75C).....	1	16	10	3	1		9		4	10	770
Chyle cyst of mesentery (Class III, Inter. 84).....			1		1						15
Chyluria, nonfilarial (Class VII, Inter. 121).....			2	2							30
Cicatricial contraction (Class XVII, Inter. 145C).....		12	13	4			9		9	3	250
Cicatrix of skin (Class XV, Inter. 145C).....		24	22	13			15		18		710
Cirrhosis of liver, atrophic (Class III, Inter. 113).....		1	1				1			1	170
Cirrhosis of liver, hypertrophic (Class III, Inter. 113).....		5	4	3	2				4		60
Clavus (Class XV, Inter. 145C).....		23	7	26					4		330
Colitis, acute (Class III, Inter. 105B).....		80	13	72	3				17	1	503
Colitis, chronic (Class III, Inter. 105B).....		8	9	5	2		1		8	2	277
Color blindness (Class VI, Inter. 75C).....		12	4		3		9		3	1	230
Concretion in salivary gland (Class III, Inter. 99B).....		3	3	4					2		60
Congestion of kidney (Class VII, Inter. 122).....		3	3	4					2		100
Congestion of lung, acute (Class XIV, Inter. 94).....	1	2	1	3					1		15
Conjunctivitis, acute (Class VI, Inter. 75A).....	5	594	188	556	34				168	29	4,645
Conjunctivitis, chronic (Class VI, Inter. 75A).....		32	40	28	7		6		28	3	1,232
Conjunctivitis, phlyctenular (Class VI, Inter. 75A).....	1	9	5	6	2		1		5	1	100
Constipation (Class III, Inter. 110B).....	4	559	99	539	12		5		91	15	3,400
Constitutional inferiority (Class XI, Inter. 68).....	3	420	248	40	40		327	3	213	48	9,000
Constitutional psychopathic state (Class XI, Inter. 68).....	2	96	76	9	13		71		68	13	3,120
Contracture of joint (Class XII, Inter. 147).....		5	3	2	2				4		160
Contracture of muscle, fascia, tendon, or sheath (Class XII, Inter. 149).....	3	25	16	14			16		10	4	602
Cornu (Class XV, Inter. 145C).....		4	2	3					3		70
Cramp of ciliary muscle (Class VI, Inter. 75C).....		8	5	7	1				5		80
Cramp of muscle (Class XII, Inter. 149).....		24	5	24	2				3		90
Curvature of spine (Class XII, Inter. 36C).....	1	30	16	5	1		22		15	4	67

TABLE 1.—DETAILED STATEMENT OF DISEASES AND INJURIES FOR THE CALENDAR YEAR 1917—Continued.

Diagnoses.	Taken up as—			Disposition.							Number of sick days this year.
	Remaining from last year.	Admitted.	Readmitted.	Duty.	Diagnosis changed.	Died.	Invalided from service.	Ran.	Transferred.	Continued to next year.	
<b>DISEASES—Continued.</b>											
Cyditis (Class VI, Inter. 75C)....	1	5	2	5					3		177
Cysticercus, unqualified (Class XVIII, Inter. 107).....		1		1							4
Cystitis, acute (nonvenereal) (Class VII, Inter. 124).....	2	81	44	66	12				40	9	1,500
Cystitis, chronic (nonvenereal) (Class VII, Inter. 124).....		29	35	21	8	1	5		26	3	647
Cyst of kidney (Class VII, Inter. 122).....			1							1	31
Cystoma (Class XIX, Inter. 46)....	4	73	38	70	4				36	5	1,296
Dacryocystitis (Class VI, Inter. 75C).....		12	6	10	2		1		5		213
Deafness (Class V, Inter. 76).....	6	61	43	25	5		37		35	8	1,837
Deformity of external ear, acquired (Class V, Inter. 76).....		1							1		12
Deformity of nose, acquired (Class XIV, Inter. 86).....	3	22	21	20	3				23		453
Deformity of penis, acquired (Class VII, Inter. 127).....		3	2	1	1		1		2		31
Deformity of stomach, acquired (Class III, Inter. 103).....			3	2						1	23
Dementia, cause unknown (Class XI, Inter. 68).....	1	16	32	1	10		3		28	7	1,430
Dementia, paralytica (Class XI, Inter. 67).....	11	16	49	7	6	5	7		38	13	4,037
Dementia, precox (Class XI, Inter. 68).....	15	164	355	21	30	2	106	1	312	60	10,763
Dengue (Class VIII, Inter. 19)....	5	872	195	855	15				177	25	6,018
Dentition (Class XVII, Inter. 189A).....		13	6	8			5		5	1	59
Dermatitis, unqualified (Class XV, Inter. 145C).....	1	133	42	130	6		2		33	5	1,474
Dermatitis, venenata (Class XV, Inter. 145C).....		102	19	104	1				16		676
Detachment of retina (Class VI, Inter. 75C).....		4	6	2			2		5	1	212
Deviation of nasal septum (Class XIV, Inter. 86).....	16	306	237	285	36		4		213	20	6,478
Diabetes insipidus (Class XVII, Inter. 55).....		3	4	1			2		4		87
Diabetes mellitus (Class XVII, Inter. 50).....	2	43	44	16	10	4	13		41	5	1,588
Diagnosis undetermined (Class XVII, Inter. 189A).....	1	1						1	1		7
Dilatation, acute cardiac (Class II, Inter. 79C).....	2	12	3	3	2	8	1		3		79
Dilatation, chronic cardiac (Class II, Inter. 79C).....		4	3		2		2		3		89
Dilatation of stomach, acute (Class III, Inter. 103).....		3	1	3		1					15
Dilatation of stomach, chronic (Class III, Inter. 103).....		1	1	1					1		56
Diphtheria (Class VIII, Inter. 9).....	3	209	118	157	26	3			106	38	4,806
Diverticulitis (Class III, Inter. 110B).....		2	2	1					2	1	39
Duodenitis (Class III, Inter. 105B).....		20	11	17	3				11		380
Dysentery, bacillary (Class VIII, Inter. 14A).....		18	5	16	1				6		208
Dysentery, entamebic (Class XVIII, Inter. 14C).....	5	67	59	68	5	1	1		48	8	2,260
Dysentery, unclassified (Class VIII, Inter. 14D).....	3	118	49	114	11		1	1	40	3	1,693
Dysidrosis (Class XV, Inter. 145C).....		2	1	1					1	1	34
Dystrophy, progressive, muscular (Class XIII, Inter. 63).....	1									1	365
Ecthyma (Class XV, Inter. 145C).....		1	1						1	1	58
Ectropion (Class VI, Inter. 75C).....		1		1							100
Eczema (Class XV, Inter. 145C).....	9	133	70	131	6		3	1	60	11	3,511

TABLE 1.—DETAILED STATEMENT OF DISEASES AND INJURIES FOR THE CALENDAR YEAR 1917—Continued.

Diagnoses.	Taken up as—			Disposition.						Number of sick days this year.	
	Remaining from last year.	Admitted.	Readmitted.	Duty.	Diagnosis changed.	Died.	Invalided from service.	Ran.	Transferred.		Continued to next year.
DISEASES—Continued.											
Edema of lung (Class XIV, Inter. 94).....		2				2					134
Elongation of uvula (Class III, Inter. 100).....		1	2	2					1		9
Embolism (Class II, Inter. 82).....		2				2					1
Emphysema, pulmonary (Class XIV, Inter. 97).....	1			1							71
Endocarditis, acute (Class II, Inter. 78).....	2	48	39	15	15	5	8		34	12	1,594
Endocarditis, chronic (Class II, Inter. 79B).....	1	66	61	27	4		49		43	5	1,543
Endothelioma (Class XIX, Inter. 39-45).....		1	1	1					1		90
Enlargement of prostate (Class VII, Inter. 126).....		1	1	2							11
Enteritis, acute (Class III, Inter. 105B).....	4	1,319	165	1,336	29	2		1	117	3	5,406
Enteritis, chronic (Class III, Inter. 105B).....	1	9	17	9	3	1	2		12		451
Enterocolitis (Class III, Inter. 105B).....		34	10	37	1				6		274
Entropion (Class VI, Inter. 75C).....		1	1	1					1		31
Epididymitis, acute (nonvenereal), (Class VII, Inter. 127).....	4	175	67	160	25				55	6	1,956
Epididymitis, chronic (nonvenereal), (Class VII, Inter. 127).....		11	13	9	2		1		10	2	215
Epiotiditis (Class XIV, Inter. 87).....		1							1		1
Epilepsy (Class XIII, Inter. 69).....	11	359	320	77	30	1	266	1	275	40	12,084
Epilepsy, Jacksonian (Class XIII, Inter. 74).....		6	11		2		6		9		285
Epiphora (Class VI, Inter. 75C).....		1	1	1					1		17
Epistaxis (Class XIV, Inter. 85).....		6	4	7					3		66
Epithelioma (Class XIX, Inter. 39-45).....		4	6	5					5		136
Erysipelas (Class VIII, Inter. 18).....	1	122	75	93	10	1			72	22	2,504
Erysipeloid (Class XVIII, Inter. 25B).....		2		2							9
Erythema multiforme (Class XV, Inter. 145C).....	1	14	5	14	1				4	1	162
Erythema nodosum (Class XV, Inter. 145C).....		6	6	6	1				5		130
Erythema scarlatiniforme (Class XV, Inter. 145C).....		14	7	13					7	1	246
Erythema simplex (Class XV, Inter. 145C).....		28	2	27					2	1	178
Erythrasma (Class XVIII, Inter. 25B).....		1	1	1					1		41
Erythromelalgia (Class XVII, Inter. 142).....		1		1							20
Esophagitis (Class III, Inter. 101).....		1		1							26
Eustachian salpingitis, acute (Class V, Inter. 76).....		4	1	4					1		22
Eustachian salpingitis, chronic (Class V, Inter. 76).....		5	3	5					3		122
Exophthalmic goiter (Class IV, Inter. 51).....	1	18	23	7	5		13		17		968
Fermentation, gastric (Class III, Inter. 103).....		19	2	18					3		68
Fermentation, intestinal (Class III, Inter. 105B).....		50	7	49					7	1	233
Fever of unknown cause (Class VIII, Inter. 189A).....	5	287	96	248	43				92	5	2,145
Fibroma (Class XIX, Inter. 46).....		21	6	18	3		1		5		343
Filariasis (Class XVIII, Inter. 19).....	2	5	5	12							163
Fissure of anus (Class III, Inter. 110A).....		11	6	12					5		267

TABLE 1.—DETAILED STATEMENT OF DISEASES AND INJURIES FOR THE CALENDAR YEAR 1917—Continued.

Diagnoses.	Taken up as—			Disposition.						Number of sick days this year.	
	Remaining from last year.	Admitted.	Readmitted.	Duty.	Diagnosis changed.	Died.	Invalided from service.	Ran.	Transferred.		Continued to next year.
DISEASES—Continued.											
Piaure of skin (Class XV, Inter. 145C).....		14	1	10	1				3	1	63
Pistula, fecal (Class III, Inter. 110A).....		3	3	3					1	2	177
Pistula in ano (Class III, Inter. 110A).....	4	89	77	69	16		2		69	14	2,948
Pistula of larynx (Class XIV, Inter. 87).....		1	1	1					1		21
Pistula of trachea (Class XIV, Inter. 98).....		1					1				19
Pistula of urethra (Class VII, Inter. 125).....	2	5	3	5	1		1		3		213
Flagellate diarrhea (Class XVIII, Inter. 105B).....		2	1	1					2		75
Folliculitis decalvans (Class XV, Inter. 145C).....			3	2					1		35
Foreign body in auditory canal (Class V, Inter. 76).....		2		1	1						30
Foreign body in bronchus (Class XIV, Inter. 186).....		1	1	1		1					15
Foreign body in frontal sinus (Class XIV, Inter. 146).....		1	1	1					1		3
Foreign body in pharynx (Class III, Inter. 186).....		1		1							
Foreign body in stomach (Class III, Inter. 103).....		2		1					1		7
Foreign body in trachea (Class XIV, Inter. 186).....		1				1					
Foreign body in urethra (Class VII, Inter. 125).....		1		1							20
Functional derangement of liver (Class III, Inter. 115).....	2	23	10	24	2				7	2	320
Furunculosis (Class VIII, Inter. 143).....	10	828	181	854	13				126	26	7,358
Ganglion (Class XII, Inter. 149).....		12	6	12					6		138
Gangrene (Class XVII, Inter. 142).....		2	1	1					1	1	116
Gastritis, acute catarrhal (Class III, Inter. 103).....	5	437	124	432	23				91	20	3,622
Gastritis, chronic catarrhal (Class III, Inter. 103).....	14	140	145	154	18		10		108	9	4,430
Gastritis, acute phlegmonous (Class III, Inter. 103).....		9		8						1	24
Gastroduodenitis (Class III, Inter. 105B).....		47	21	46	4		1		16	1	529
Gastroenteritis (Class III, Inter. 105B).....	5	890	181	904	22				143	7	4,687
Gastroptosis (Class III, Inter. 103).....		7	6	3	2		4		3	1	177
Genu valgum (Class XII, Inter. 147).....		1					1				3
Genu varum (Class XII, Inter. 147).....		2	2	1			1		2		39
German measles (Class VIII, Inter. 19).....	4,066	2,508	3,690	205				3	2,511	16	58,921
Gigantism (Class XVII, Inter. 55).....		1							1		
Gingivitis (Class III, Inter. 99A).....	17	3	15	1			1		1	2	136
Glasroma, chronic (Class VI, Inter. 75C).....		3	2	1	1		1		2		21
Glossitis, acute (Class III, Inter. 99B).....		5	5	6					4		70
Glycosuria (Class XVII, Inter. 50).....		7	4	6					5		55
Gonor (Class IV, Inter. 88).....	4	61	49	28	4		40		38	4	1,864
Gonococcus infection of conjunctiva (Class IX, Inter. 38B).....	1	37	23	35	5				28	2	826
Gonococcus infection of joints (Class IX, Inter. 38B).....	19	125	246	152	24		40	1	148	25	9,374
Gonococcus infection of lymph-node (Class IX, Inter. 38B).....	5	76	90	115	8		2	1	34	11	17,888

TABLE 1.—DETAILED STATEMENT OF DISEASES AND INJURIES FOR THE CALENDAR YEAR 1917—Continued.

Diagnoses.	Taken up as—			Disposition.						Number of sick days this year.	
	Remaining from last year.	Admitted.	Readmitted.	Duty.	Diagnosis changed.	Died.	Invalided from service.	Ran.	Transferred.		Continued to next year.
DISEASES—Continued.											
Gonococcus infection of urethra (Class IX, Inter. 38B).....	66	12,442	3,261	14,402	238		17	14	1,752	346	73,784
Gonococcus infection, unqualified (Class IX, Inter. 38B).....	34	657	929	1,070	43	1	10	1	393	102	22,308
Gout, acute (Class XVII, Inter. 48C).....	1	4	2	6						1	81
Gout, chronic (Class XVII, Inter. 48C).....			1						1		
Hallux valgus (Class XII, Inter. 149).....	1	18	13	10	3		5		11	3	619
Hallux varus (Class XII, Inter. 149).....		2	3	2	2					1	54
Hammer toe (Class XII, Inter. 149).....	3	43	34	37			10		29	9	1,433
Hay fever (Class XIV, Inter. 98).....		5	2	6					1		144
Headache (Class XVII, Inter. 189A).....	1	36	5	34	1				4	3	301
Heart block (Class II, Inter. 85).....		3	1	2		1			1		35
Hematemesis (Class III, Inter. 103).....		2	1	2					1		6
Hematocoele of spermatic cord (Class VII, Inter. 127).....	1	1		1					1		5
Hematoma of external ear, non-traumatic (Class V, Inter. 76).....	1			1							1
Hemorrhachis (Class XIII, Inter. 63).....		2	1						2	1	131
Hematuria, renal (Class VII, Inter. 122).....		18	21	16	3		2		16	2	606
Hemianopsia (Class VI, Inter. 75C).....		2	1	1					1	1	114
Hemiplegia, old (Class XIII, Inter. 63).....	1	3	5	2	1		2		4		184
Hemoglobinuria (Class VII, Inter. 122).....		2	3	4					1		84
Hemoglobinuric fever (Class VII, Inter. 19).....		2		1					1		11
Hemophilia (Class I, Inter. 55).....		5	6	2	1		2		5	1	324
Hemoptysis (Class XIV, Inter. 96).....	1	10	9	5	7				8		223
Hemorrhage, intestinal (Class III, Inter. 110B).....		1	1	2							20
Hemorrhage into cerebrum (Class XIII, Inter. 64).....	1	9	5	4		2	1		5	3	606
Hemorrhage into retina (Class VI, Inter. 75C).....		3	5	1	1		1		4	1	112
Hemorrhage, subdural (Class XIII, Inter. 64).....		1				1					1
Hemorrhage under conjunctiva, nontraumatic (Class VI, Inter. 75C).....		3		2							5
Hemorrhoids (Class III, Inter. 83).....	15	679	501	641	51		7	2	452	42	12,351
Hemothorax (Class XIV, Inter. 93).....		2		1					1		26
Hernia, epigastric (Class XVI, Inter. 109).....		9	9	8			2		8		351
Hernia, femoral (Class XVI, Inter. 109).....		13	12	4	4		2		13	2	166
Hernia, inguinal (Class XVI, Inter. 109).....	39	1,166	1,201	1,021	89		183	2	972	139	39,077
Hernia of brain (Class XIII, Inter. 74).....		1					1				21
Hernia of muscle, fascia, tendon, or sheath (Class XII, Inter. 149).....	1	4		1			2			2	115
Hernia, umbilical (Class XVI, Inter. 109).....	1	9	4	5			2		7		127
Hernia, ventral (Class XVI, Inter. 109).....	3	41	31	24	2		14	1	26	8	1,379
Herpes (Class XV, Inter. 145C).....		51	14	51					10	4	609
Hiccough (Class XIII, Inter. 74).....		2	1	2					1		10



TABLE 1.—DETAILED STATEMENT OF DISEASES AND INJURIES FOR THE CALENDAR YEAR 1917—Continued.

Diagnoses.	Taken up as—			Disposition.						Number of sick days this year.	
	Remaining from last year.	Admitted.	Readmitted.	Duty.	Diagnosis changed.	Died.	Invalided from service.	Ran.	Transferred.		Continued to next year.
DISEASES—Continued.											
Hodgkin's disease (Class X, Inter. 53A).....		1	3	1					2	1	117
Hydrocoelum (Class VI, Inter. 75C).....		48	13	48	2				11		453
Hydrocele of spermatic cord (Class VII, Inter. 127).....		21	10	17			2	1	8	3	378
Hydrocele of tunica vaginalis (Class VII, Inter. 127).....	4	71	51	73	6		2		43	2	1,832
Hydronephrosis (Class VII, Inter. 122).....	2	3	4	3	1	1	1		3		159
Hypersthesia of retina (Class VI, Inter. 75C).....		8	3	4	1		1		4	1	178
Hyperchylia, gastric (Class III, Inter. 103).....		10	3	9					2	2	177
Hyperidrosis (Class XV, Inter. 145C).....		2		2							18
Hypermetropia (Class VI, Inter. 75C).....	1	159	47	146	5		14		38	4	1,216
Hypernephroma (Class XIX, Inter. 45E).....		3							2	1	45
Hypertrophy of bone (Class XII, Inter. 145).....		18	16	10	2		1	1	17	3	248
Hypertrophy of heart (Class II, Inter. 75C).....		8	6		2		6		6		173
Hypertrophy of mammary gland (Class XVII, Inter. 133).....		4	2	3					3		64
Hypertrophy of tonsil (Class III, Inter. 100).....	12	874	290	860	27			2	259	28	8,706
Hypochlorhydria (Class III, Inter. 103).....		3	4	5			1		1		226
Hypochondriasis (Class XIII, Inter. 68).....		12	7	1	3		9		5	1	255
Hysteria (Class XIII, Inter. 73A).....	1	115	83	68	13		36		66	16	2,718
Impedility (Class XI, Inter. 74).....		62	19	6	3		50		15	7	1,230
Impacted feces (Class III, Inter. 10B).....		8		8							33
Impetigo contagiosa (Class XV, Inter. 145C).....	1	88	37	83	2				36	5	1,192
Impetigo herpetiformis (Class XV, Inter. 145C).....		5		4					1		16
Impetigo simplex (Class XV, Inter. 145C).....		8		8							72
Incontinence of urine (Class VII, Inter. 124).....		100	68	32	14		58		58	6	2,806
Infarct of lung (Class XIV, Inter. 94).....		1					1				8
Inflammation of salivary gland (Class III, Inter. 99B).....	1	5	3	5	1				3		105
Influenza (Class VIII, Inter. 10).....	55	10,325	1,575	9,982	299	1		3	1,355	315	52,705
Ingrowing nail (Class XV, Inter. 149C).....	10	390	70	378	8		1		68	15	4,695
Inadequacy of ocular muscle (Class VI, Inter. 75C).....		25	17	10			14		14	4	724
Intertrigo (Class XV, Inter. 145C).....		3	1	3					1		26
Iridochoroiditis (Class VI, Inter. 75C).....		2	1	2					1		31
Iridocyclitis (Class VI, Inter. 75C).....		9	4	4			2		6	1	317
Iritis (Class VI, Inter. 75C).....	1	82	65	69	11		3	1	53	11	2,968
Jaundice, acute infective (Weill's disease) (Class VIII, Inter. 111).....	1	5	3	6	1				2		273
Kala-azar (Class VIII, Inter. 54).....		1		1							93
Keratitis (Class VI, Inter. 75C).....	1	33	21	25	7		3		19	1	875
Keratitis, phlyctenular (Class VI, Inter. 75C).....		5	9	8	1				5		236
Keratoderma (Class XV, Inter. 145C).....		3	2	1	1				3		19
Keratoiritis (Class VI, Inter. 75C).....	1	2	3	3	1				2		189
Keratoecosis (Class XV, Inter. 145C).....		2		1					1		20
Laryngitis, acute (Class XIV, Inter. 87).....	2	442	82	400	13		1		71	41	3,425

TABLE 1.—DETAILED STATEMENT OF DISEASES AND INJURIES FOR THE CALENDAR YEAR 1917—Continued.

Diagnoses.	Taken up as—			Disposition.							days Number of sick this year.
	Remaining from last year.	Admitted.	Readmitted.	Duty.	Diagnosis changed.	Died.	Invalided from service.	Ran.	Transferred.	Continued to next year.	
DISEASES—Continued.											
Laryngitis, chronic (Class XIV, Inter. 87).....	1	20	18	14	6		3		14	2	27
Leprosy (Class VIII, Inter. 17).....		1	1						1	1	1
Leukemia (Class I, Inter. 53C).....		2	3	1		1			3		2
Leukoma (Class VI, Inter. 75C).....		2	1	1					1	1	1
Lichen, planus (Class XV, Inter. 145C).....	1	3	3	6					1		1
Lichen, ruber (Class XV, Inter. 145C).....		1		1							1
Lipoma (Class XIX, Inter. 46).....	3	27	14	23	3		1	1	14	2	2
Locomotor ataxia (Class XIII, Inter. 62).....	2	9	6	4	3		2		5	3	4
Loose body in joint (Class XII, Inter. 147).....	3	23	11	13	2		7		10	5	5
Loss of substance of bone or car- tilage (Class XII, Inter. 146).....		5	2	2			2		1	2	2
Lupus, erythematosus (Class XV, Inter. 145C).....		4	9	3			1		6	3	3
Lymphadenitis, acute (Class X, Inter. 84).....	39	695	338	687	50		1		278	56	16,98
Lymphadenitis, chronic (Class X, Inter. 84).....	3	43	42	42	8			1	32	5	1,38
Lymphangiectasis (Class X, In- ter. 84).....		2		2							1
Lymphangioma (Class XIX, In- ter. 46).....		1		1							1
Lymphangitis (Class X, Inter. 84).....	2	100	39	94	8				37	2	1,28
Lymphoma (Class XIX, Inter. 46).....		2		2							1
Malaria (Class VIII, Inter. 4).....	62	2,045	1,303	2,793	73	3		2	510	29	23,08
Malformations, congenital (Class XVII, Inter. 150).....	1	30	21	14	2		11		20	5	78
Malnourishing (Class XVII, Inter. 189B).....		19	5	16	3				4	1	28
Malnutrition (Class XVII, Inter. 189A).....		3	1	1					2	1	2
Mastoiditis, acute (Class V, In- ter. 146).....	1	122	58	82	19	1	2		51	26	5,18
Mastoiditis, chronic (Class V, Inter. 146).....		24	20	10	1		8	2	20	3	68
Masturbation (Class VII, Inter. 74).....		6	2	1	1		3		3		1
Measles (Class VIII, Inter. 6).....	39	7,694	7,302	6,803	687	5		9	7,141	390	121,08
Mediastino-pericarditis (Class II, Inter. 77).....		1		1							1
Melancholia, involutional (Class XI, Inter. 68).....		4	4	1	1		2		4		1
Meniere's disease (Class XIII, Inter. 76).....							2		5		1
Meningitis, cerebral (Class XIII, Inter. 61).....	1	3	4	1							1
Meningitis, cerebro-spinal (Class XIII, Inter. 61).....	1	10	7	2		12			4		6
Meningitis, spinal (Class XIII, Inter. 61).....		135	98	64	16	39	7		96	12	6,38
Metatarsalgia (Class XII, Inter. 149).....		7	7	1	4	1	1		6	1	4
Micraimie (Class XVII, Inter. 74).....		9	6	2			5		6	2	2
Miliaria (Class XV, Inter. 145C).....		28	14	30	2		2		8		1
Mixed benign tumor (Class XIX, Inter. 46).....		6	5	11							1
Mumps (Class VIII, Inter. 19).....		2	1	2					1		1
Myasthenia gravis (Class XIII, Inter. 63).....	55	9,779	8,891	8,325	290			10	8,786	1,814	184,4
Mycosis fungoides (Class XV, Inter. 26B).....			1	1							1
Myelitis, disseminated (Class XIII, Inter. 63).....		2	2				2		2		1

TABLE 1.—DETAILED STATEMENT OF DISEASES AND INJURIES FOR THE CALENDAR YEAR 1917—Continued.

Diagnoses.	Taken up as—			Disposition.							Number of sick days this year.
	Remaining from last year.	Admitted.	Readmitted.	Duty.	Diagnosis changed.	Died.	Invalided from service.	Ran.	Transferred.	Continued to next year.	
DISEASES—Continued.											
Myelitis, transverse (Class XIII, Inter. 63).....		3	3		1	1			3	1	141
Myocarditis, acute (Class II, Inter. 78).....		18	7	7	4	5			6	3	166
Myocarditis, chronic (Class II, Inter. 79C).....	1	62	43	25	8	5	29	1	30	8	1,370
Myopia (Class VI, Inter. 75C).....	3	162	85	71	25		86		60	8	2,569
Myositis, acute (Class XII, Inter. 149).....	1	112	20	112	4				15	2	800
Myositis, chronic (Class XII, Inter. 149).....	1	23	15	18	1		3		16	1	572
Myringitis, acute (Class V, Inter. 76).....		11	7	11			1		4	2	110
Myringitis, chronic (Class V, Inter. 76).....		1	1	1					1		107
Myxoma (Class XIX, Inter. 46).....		2	1	2					1		17
Nausea marina (Class XVII, Inter. 189A).....	1	91	55	84	3		9		36	15	1,041
Necrosis (Class XII, Inter. 146).....	2	14	18	12	1				17	4	726
Nephralgia (Class VII, Inter. 122).....		9	5	10					3	1	82
Nephritis, acute (Class VII, Inter. 119).....	3	97	88	60	29	5	1		80	13	3,267
Nephritis, chronic interstitial (Class VII, Inter. 120).....	3	47	43	27	6	2	14		37	7	2,107
Nephritis, chronic parenchymatous (Class VII, Inter. 120).....	2	75	75	20	9	6	42		64	11	2,712
Nephritis, disseminated suppurative (Class VII, Inter. 122).....			3	1					2		95
Nephrolithiasis (Class VII, Inter. 123).....	2	51	57	35	13		6		47	9	1,394
Nephropotosis (Class VII, Inter. 122).....		8	4	5	2		1		4		88
Nervous dyspepsia (Class III, Inter. 103).....	1	9	3	9	1		1		2		182
Neuralgia (Class XIII, Inter. 73B).....	3	208	61	198	17		4		49	4	2,048
Neurasthenia (Class XIII, Inter. 74).....	24	265	244	197	30		68		207	31	9,571
Neuritis (Class XIII, Inter. 73B).....	6	179	93	133	19		22		86	18	4,658
Neuritis, multiple (Class XIII, Inter. 73B).....	1	7	11	10	2		2		4	1	289
Neuritis, optic (Class VI, Inter. 75C).....		6	7	2	3		4		4		318
Neuroretinitis (Class VI, Inter. 75C).....	2	7	9	5	1		3		8	1	465
Neurosis, intestinal (Class III, Inter. 110B).....	1	33	14	26	3		5		11	3	423
Neurosis, occupational (Class XIII, Inter. 74).....		4	1	1			3			1	62
Neurosis of bladder (Class VII, Inter. 124).....	2	107	60	45	8		56	1	54	10	2,457
Neurosis of larynx (Class XIV, Inter. 87).....			1							1	23
Neurosis, traumatic (Class XIII, Inter. 74).....	14	12	6	6	1		5		8	6	460
Nervus (Class XV, Inter. 150).....	2	1	1	1			1		1		15
Night blindness (Class VI, Inter. 75C).....		1	1						2		5
No disease (Class XVII, Inter. 189A).....	5	1,074	1,134	1,510	61		84	4	1,058	396	43,595
Nostalgia (Class XVII, Inter. 68).....		1	4	3			1		1		87
Nystagmus (Class VI, Inter. 75C).....		3	1		1		2		1		49
Obesity (Class XVII, Inter. 55).....		6	3	3			2		4		47
Obstruction, acute intestinal (Class III, Inter. 109).....	1	16	11	13	1	5	1		7	1	317
Obstruction, chronic intestinal (Class III, Inter. 109).....	3	5	7	5	1		1		7	1	446
Oncchia (Class XV, Inter. 145C).....		2	5	28					4	1	207

TABLE 1.—DETAILED STATEMENT OF DISEASES AND INJURIES FOR THE  
CALENDAR YEAR 1917—Continued.

Diagnoses.	Taken up as—			Disposition.						Number of sick days this year.	
	Remaining from last year.	Admitted.	Readmitted.	Duty.	Diagnosis changed.	Died.	Invalided from service.	Ran.	Transferred.		Continued to next year.
DISEASES—Continued.											
Onychoma (Class XV, Inter. 145C).....		1		1							
Opacity of vitreous humor (Class VI, Inter. 75C).....	1	3	2		1		3		2		
Ophthalmoplegia, (Class VI, Inter. 75C).....		2	2	2					2		
Orothitis, acute (nonvenereal) (Class VII, Inter. 127).....	3	324	107	294	33		1		98	8	3, 4
Orothitis, chronic (nonvenereal) (Class VII, Inter. 127).....		17	22	18	2		3		13	3	
Ossification of auricle (Class V, Inter. 76).....		1					1				
Osteitis, deformans (Class XII, Inter. 146).....		2	2	1			1		2		
Osteoarthritis, hypertrophic (Class XVII, Inter. 36B).....		3	2				3		2		
Osteoma (Class XIX, Inter. 46).....	2	23	14	16	1		4		12	6	7
Osteomyelitis, acute (Class XII, Inter. 146).....	3	15	15	12	3		1		12	5	1, 4
Osteomyelitis, chronic (Class XII, Inter. 146).....	1	20	17	14			9		13	2	
Otitis, externa (Class V, Inter. 76).....	1	209	60	209	10				49	2	1, 4
Otitis, intern <sup>a</sup> , acute (Class V, Inter. 76).....		7	4	3	1				5	2	1, 4
Otitis, interna, chronic (Class V, Inter. 76).....	1	17	23	17	2		7		14	1	
Otitis, media, acute (Class V, Inter. 76).....	24	903	424	731	128		8	2	386	96	18, 7
Otitis, media, chronic (Class V, Inter. 76).....	25	596	499	357	54		270		374	65	16, 5
Oxyuriasis (Class XVIII, Inter. 107).....		3	1	3					1		
Ozena (Class XIV, Inter. 89).....		5	5	4			3		3		
Pachymeningitis, cerebral (Class XIII, Inter. 61).....	1						1				
Palpitation, cardiac (Class II, Inter. 85).....	1	27	8	25	2		2		6	1	2
Pancreatitis, chronic (Class III, Inter. 118).....		3		2						1	1
Papilloma (Class XIX, Inter. 46).....		13	7	8	2				8	2	
Pappataci fever (Class VIII, Inter. 19).....		26	1	25	1				1		
Paralysis agitans (Class XIII, Inter. 63).....	1						3				
Paralysis of nerve (Class XIII, Inter. 66).....	1	53	47	35	3		11		42	10	1, 9
Paralysis of ocular muscle (Class VI, Inter. 75C).....	1	10	7	0			4		7	1	1
Paralysis of vocal cords (Class XIV, Inter. 74).....		1	1						1	1	
Paralysis, muscle, ischemic (Class XII, Inter. 149).....	1						1				
Paramyoclonus, multiplex (Class XIII, Inter. 74).....		3	5	2	2		1		3		
Paranoia (Class XI, Inter. 68).....		9	15		9		2		13		
Paranoid state (Class XI, Inter. 68).....		11	22	2	2		3		21	5	
Paraphimosis (Class VII, Inter. 127).....		41	17	37	3				14	4	
Paraplegia, ataxic (Class XIII, Inter. 66).....	1						1				
Paratyphoid fever (Class VIII, Inter. 1).....		20	19	4	15				18	2	
Pediculosis (Class XVIII, Inter. 145C).....		42	8	42	1				6	1	
Pellagra (Class VIII, Inter. 26).....		2	2	1	2				1		
Pemphigus (Class XV, Inter. 145C).....		6	4	6		1			3		

TABLE 1.—DETAILED STATEMENT OF DISEASES AND INJURIES FOR THE CALENDAR YEAR 1917—Continued.

Diagnoses.	Taken up as—				Disposition.						Number of sick days this year.
	Remaining from last year.	Admitted.	Readmitted.	Duty.	Diagnosis changed.	Died.	Invalided from service.	Ret.	Transferred.	Continued to next year.	
DISEASES—Continued.											
Perforated nasal septum (Class XIV, Inter. 85).....		4	4	3					3	2	19
Pericarditis (Class II, Inter. 77).....		14	8	3	7		1		8	3	434
Perichondritis, of auricle (Class V, Inter. 76).....		2	2	2					2		30
Perihepatitis (Class III, Inter. 114).....		2	1	1					1	1	31
Periostitis, acute (Class XII, Inter. 146).....	1	74	44	70	8				37	4	1,829
Periostitis, chronic (Class XII, Inter. 146).....		30	22	19	7		11		14	1	651
Peritonitis, acute general (Class III, Inter. 117).....		4				4					3
Peritonitis, acute local (Class III, Inter. 117).....		3	2	1	1				2	1	95
Peritonitis, chronic local (Class III, Inter. 117).....		1	1	1						1	3
Pneumocystis (Class XII, Inter. 149).....		2					2				24
Pneumonia (Class XII, Inter. 149).....	13	795	644	271	26		553	4	524	74	17,577
Pleurisy, acute (Class III, Inter. 100).....		366	50	341	10				45	20	1,815
Pleurisy, chronic (Class III, Inter. 100).....		9	4	11					1	1	240
Pneumonia (Class VII, Inter. 127).....	4	528	163	520	15		1	1	151	7	4,033
Pneumonia (Class II, Inter. 83).....		39	16	32	5		2		12	4	802
Pityriasis rosea (Class XV, Inter. 145C).....		18	3	18					3		141
Pityriasis, simplex (Class XV, Inter. 145C).....		1	1	1					1		22
Pityriasis versicolor (Class XVIII, Inter. 258).....		2		2							19
Pleurisy, acute fibrinous (Class XIV, Inter. 93).....	9	550	308	452	100		4		265	46	9,689
Pleurisy, chronic fibrinous (Class XIV, Inter. 93).....	5	38	21	21	7	1	2		25	8	1,321
Pleurisy, serofibrinous (Class XIV, Inter. 93).....	2	123	100	60	46	4	2		97	16	3,350
Pleurisy, suppurative (Class XIV, Inter. 93).....	5	212	68	82	28	52	20	3	50	50	18,108
Pleuritic adhesions (Class XIV, Inter. 93).....		27	14	20			3		12	6	412
Pneumonia, broncho (Class XIV, Inter. 91).....	3	459	200	250	95	67		1	187	62	11,234
Pneumonia, interstitial (Class XIV, Inter. 98).....		3	1	1		1			1	1	193
Pneumonia, lobar (Class XIV, Inter. 92).....	28	1,234	871	630	275	132	2	2	835	248	33,166
Poliomyelitis, acute anterior (Class VIII, Inter. 63).....	2	5	4	5			1		2	3	554
Poliomyelitis, chronic anterior (Class VIII, Inter. 63).....		5			2		2		1		146
Poliomyelitis, acute bulbar (Class VIII, Inter. 63).....		1	1			1			1		1
Polypos, nasal (Class XIV, Inter. 46).....	2	12	42	23	5				23	5	446
Prostrophy (Class VI, Inter. 73C).....		1	2	2					1		11
Proctitis (Class III, Inter. 110A).....		12	7	9	2		2		6		358
Proctopos, of rectum (Class III, Inter. 110B).....		19	17	9	3		6	1	14	3	282
Prostatitis, acute (nonvenereal) (Class VII, Inter. 126).....		13	4	10	1				5	1	127
Prostatitis, chronic (nonvenereal) (Class VII, Inter. 126).....		14	8	9	1				7	5	379
Prostatitis (Class XV, Inter. 145C).....		8	4	7	1				4		71
Proctitis (Class XV, Inter. 145C).....	3	26	11	27			2		19	1	336
Prothrombosis (Class XI, Inter. 80).....	11	64	81	21	18		32	3	70	12	2,611

TABLE 1.—DETAILED STATEMENT OF DISEASES AND INJURIES FOR THE CALENDAR YEAR 1917—Continued.

Diagnoses.	Taken up as—			Disposition.						Number of sick days this year.	
	Remaining from last year.	Admitted.	Readmitted.	Duty.	Diagnosis changed.	Died.	Invalided from service.	Ran.	Transferred.		Continued to next year.
DISEASES—Continued.											
Psychosis, due to organic brain disease (Class XI, Inter. 74).....		6	11	1	2		2		8	4	1,078
Psychosis, epileptic (Class XI, Inter. 69).....		5	3	1	1		4		2		105
Psychosis (exhaustive, infective, and toxic) (Class XI, Inter. 68).....		11	20	8	4		5		12	2	356
Psychosis, hysterical (Class XI, Inter. 73A).....	2	12	10	9	1		5		7	2	426
Psychosis, intoxication (Class XI, Inter. 68Y).....	3	27	27	20	4		4		28	1	600
Psychosis, manic depressive (Class XI, Inter. 68).....	1	40	67	2	12	1	15	1	61	16	1,733
Psychosis, polynuritic (Class XI, Inter. 68).....		1	3	2						2	64
Psychosis, senile (Class XI, Inter. 154A).....		2	7	1	1				5	2	360
Psychosis, traumatic (Class XI, Inter. 68).....	1	10	10	7			3		9	2	722
Pterygium (Class VI, Inter. 75C).....	6	48	36	52	5				32	1	1,344
Purpura (Class I, Inter. 55).....		6	6	7					4	1	100
Purpura, hemorrhagic (Class I, Inter. 55).....		8	5	4	1	1			5	2	76
Pyelitis (Class VII, Inter. 122).....		32	26	22	7		1		23	5	980
Pyelonephritis (Class VII, Inter. 122).....	1	7	11	8			1		7	3	359
Pyriospasm (Class III, Inter. 103).....		2	3	2	1				2		90
Pyorrhea, alveolar (Class III, Inter. 99A).....	6	46	38	42	3		10		32	3	1,251
Rabies (Class VIII, Inter. 23).....			1							1	13
Raynaud's disease (Class XVII, Inter. 147).....		2	2				2		2		80
Redundant prepuce (Class VII, Inter. 127).....	3	743	80	728	13				72	13	4,883
Regurgitation of stomach (Class III, Inter. 103).....		1	4	1					4		69
Retention cyst (Class XIX, Inter. 46).....		16	10	13	2				10	1	218
Retinitis (Class VI, Inter. 75C).....	2	49	42	19	6		20	2	38	8	1,661
Rheumatic fever, acute (Class VIII, Inter. 47).....	13	894	728	792	125	1	10	1	580	126	37,768
Rheumatic fever, subacute (Class VIII, Inter. 47).....	4	163	149	168	24		9		103	12	5,277
Rheumatism, chronic articular (Class XVII, Inter. 48B).....	14	328	293	250	34		69		225	57	11,300
Rheumatism, muscular (Class XVII, Inter. 149).....	9	574	221	539	35		13	2	158	37	7,729
Rhinitis, acute (Class XIV, Inter. 80).....	1	212	27	216	1				18	5	877
Rhinitis, atrophic (Class XIV, Inter. 83).....		14	9	8	1		6		8		218
Rhinitis hypertrophic (Class XIV, Inter. 86).....	5	48	41	46	8		2		37	1	1,313
Rhinoscleroma (Class XV, Inter. 86).....		1	1		1				1		66
Rickets (Class XVII, Inter. 36C).....		1	2		2		1				35
Sarcoma (Class XIX, Inter. 39-45).....	1	10	12	5	1	5	2		9	1	919
Scabies (Class XVIII, Inter. 145B).....	13	815	425	806	31			1	371	44	11,274
Scarlet fever (Class VIII, Inter. 7).....		658	629	509	66	5			601	106	25,749
Scleritis (Class VI, Inter. 75C).....	1	6	3	6					4		75
Scleroderma (Class XV, Inter. 145C).....		1	3						3	1	52
Sclerosis, amyotrophic lateral (Class XIII, Inter. 63).....			1							1	70
Sclerosis, disseminated (Class XIII, Inter. 63).....		5		1	1	1			1	1	337

# **ANNUAL STATEMENT OF DISEASES AND INJURIES FOR THE CALENDAR YEAR 1917—Continued.**

	Taken up as—			Disposition.							Number of sick days this year.
	Remaining from last year.	Admitted.	Readmitted.	Duty.	Diagnosis changed.	Died.	Invalided from service.	Ran.	Transferred.	Continued to next year.	
ued.											
XIII.		3	2	1			2		2		141
r. 49).		4	1	2					1	2	131
Inter.		3	1	1	1		1		1		28
ss VII.		1	1	1					1		7
Inter.		16	11	6			6		12	3	401
ter 20).		37	21	13	7	14	2		21	1	1,018
r. 189A).		5		4						1	22
145C).	1	18	27	18	1		1		19	7	876
s XIV.		1	30	21	24	2	2		20	4	996
XIV.	2	177	111	164	15		3		93	15	4,551
s XIV.	4	65	40	56	4		3		35	11	1,950
s XIV.		2		1	1						18
ter. 5).		10	2	6		1			2	3	173
XIII.		11	3				11		3		180
Inter.		1		1							
i, Inter.		2	2	1			1		2		62
, Inter.		2		1	1						31
erstitial		2		2							25
(Class	2	5	4	8					3		107
, Inter.		25	9	4			25		5		243
ass VI.		1	1	1					1		6
ass III.		2	1	2					1		21
ass VI.		3	2	1			1		2	1	43
rimale		1	2	1	1				1		26
ass III.		1	5	2					3	1	309
er. 99B).	1	27	18	28	5	1	2		10		435
ass III.		4	4		1		2		5		129
ss VII.		10	4	4					7	3	113
ss VII.		37	41	36	7		3	1	28	3	667
(Class		3	1	2			1		1		4
ter. 74).		5	1				4		1	1	74
Inter.		1		1							11
ss VII.		4	2	3	1				1	1	18
Inter.		1	1	1					1		6
r. 75C).		5	5	4	1		1		3	1	95
37).	173	2,469	2,473	2,886	232	2	99	5	1,594	297	67,345
ter. 85).	1	78	47	48	10		25		39	4	1,465
r. 149).		13	5	2	1		8		5	2	335
Inter.		1	59	23	63	4			14	2	613
, Inter.	2	59	19	56	5		2		15	2	781

TABLE 1.—DETAILED STATEMENT OF DISEASES AND INJURIES FOR THE CALENDAR YEAR 1917—Continued.

Diagnoses.	Taken up as—			Disposition.							Number of sick days this year.
	Remaining from last year.	Admitted.	Readmitted.	Duty.	Diagnosis changed	Died.	Invalided from service.	Ran.	Transferred.	Continued to next year.	
DISEASES—Continued.											
Teratoma (Class XIX, Inter. 46).....		2	2	2					1	1	183
Tetany (Class XVII, Inter. 74).....		2	2	2					2		25
Thrombosis (Class II, Inter. 82).....		7	5	4	1	1				6	267
Thrush (Class XVIII, Inter. 99B).....		2	1	2					1		44
Thyroiditis, acute (Class IV, 88).....		2		1	1						57
Thyroiditis, chronic (Class IV, Inter. 88).....		6	4	4	2				4		68
Tic, Convulsive (Class XIII, Inter. 74).....	1		1	1					1		76
Tonsillitis, acute follicular (Class III, Inter. 100).....	73	12,412	2,491	12,108	293			5	2,108	462	67,867
Tonsillitis, chronic (Class III, Inter. 100).....	5	340	194	334	18		1		168	18	4,686
Torsion of spermatic cord, non-traumatic (Class VII, Inter. 127).....		4	2	4	1				1		22
Tracheitis (Class XIV, Inter. 89).....		8	2	10							37
Trachoma (Class VI, Inter. 75B).....	37	42	22	13			13	1	29	1	1,214
Trichiniasis (Class XVIII, Inter. 107).....		2	2	2		1			1		27
Trichoptysis (Class XVIII, Inter. 145A).....	4	311	242	335	7				211	4	3,447
Trichuriasis (Class XVIII, Inter. 107).....		4		3					1		17
Trichuris, trichiura (Class XVIII, Inter. 107).....		2		2							3
Tuberculosis, abdominal (Class VIII, Inter. 31).....	1	7	10	1	2		1		10	4	798
Tuberculosis, acute, bronchopneumonic (Class VIII, Inter. 29).....	2	25	30	1	9	5	1		35	6	949
Tuberculosis, acute general (Class VIII, Inter. 29).....		2	5				1		4	2	441
Tuberculosis, acute pneumonic (Class VIII, Inter. 29).....	1	22	27	2	12	3	4		22	7	761
Tuberculosis, acute and pulmonary miliary (Class VIII, Inter. 29).....		14	11	1	3	2	2		13	4	561
Tuberculosis, chronic pulmonary (Class VIII, Inter. 28).....	203	676	965	67	89	47	403	4	964	260	92,608
Tuberculosis of bronchus (Class VIII, Inter. 28).....		1	1		1				1		53
Tuberculosis of joint (Class VIII, Inter. 33).....	2	17	13	3	2		7		13	7	1,146
Tuberculosis, of larynx (Class VIII, Inter. 28).....	2	4	6	1			4		6	1	586
Tuberculosis of pleura (Class VIII, Inter. 28).....	1	5	6	1	3		2		6		263
Tuberculosis of spinal column (Class VIII, Inter. 32).....		1	2	1					1	1	73
Tuberculosis, unqualified (Class VIII, Inter. 34).....	8	21	30	13	6	1	9		26	4	2,714
Tuberculous meningitis (Class VIII, Inter. 30).....		2	1			2			1		2
Typhoid fever (Class VIII, Inter. 1).....	66	28	49	9	1				29	6	3,456
Typhus fever (Class VIII, Inter. 2).....	2	1	2						1		6
Ulcer of duodenum (Class III, Inter. 105A).....	3	41	45	24	6	2	1		44	12	1,596
Ulcer of eye and adnexa (Class VI, Inter. 75C).....		76	48	74	3		3		39	5	1,269
Ulcer of mouth (Class III, Inter. 99B).....		14	10	11	3				8	2	257
Ulcer of nasal passage (Class XIV, Inter. 86).....	2	4	4	3	3				3	1	269
Ulcer of rectum (Class III, Inter. 110B).....		5	2	5					1	1	126
Ulcer of skin (Class XV, Inter. 145C).....	11	135	76	126	11		1		60	24	4,621



# **TABLED STATEMENT OF DISEASES AND INJURIES FOR THE CALENDAR YEAR 1917—Continued.**

	Taken up as—			Disposition.							Number of sick days this year.
	Remaining from last year.	Admitted.	Readmitted.	Duty.	Diagnosis changed.	Died.	Invalided from service.	Ran.	Transferred.	Continued to next year.	
Continued.											
III, Inter.	8	85	100	55	9	4	18		86	21	5,240
ng in a	4	99	49	95	7				45	5	1,393
III, Inter,	1	265	89	319	6				28	2	1,500
ty (Class	1	42	29	13	3		24		27	5	863
II, Inter.			6	4					2		98
Inter. 122)		9	1	7					3		26
(venereal)		16	1	13					4		95
(venereal)		3	3	4	2						83
ter. 145C)		105	17	102	3				13	4	571
ter. 19)	3	1,064	202	1,064	7				183	15	5,736
c, cardiac	3	369	178	58	16	7	290	1	143	35	8,345
Inter. 83)	11	597	487	560	45		14	1	427	48	13,985
83)	5	161	178	137	12		35		142	18	5,414
ass VIII,		3	1		2				2		10
ter. 189A)		27	9	24	2		2		8		249
Class III,		2	1	2					1		14
145C)	1	38	27	41	1			2	20	2	773
ass VIII,		12	8	8	2				8	2	329
er. 145C)		22	4	21					4	1	132
Class XX,			1	1							18
Class XX,		5		5							33
Class XX,			1	1							5
Class XX,			3	3							10
Class XX,	1	1	1	1					1		5
lass XX,	1	1	1	1					1		7
lass XX,		2	1	2					1		15
lass XX,		5		5							20
lass XX,	1	1	1	2							12
lass XX,		2		1					1		7
lass XX,	1			1							3
" (Class	1			1							
" (Class	3	1	3						1		37
" (Class	6		5						1		15
lass XX,	1		1								3
lass XX,	2		2								3
lass XX,	30	4	30						3	1	263
" (Class	1	1		1					1		11

TABLE 1.—DETAILED STATEMENT OF DISEASES AND INJURIES FOR THE CALENDAR YEAR 1917—Continued.

Diagnoses.	Taken up as—			Disposition.						Number of sick days this year.	
	Remaining from last year.	Admitted.	Readmitted.	Duty.	Diagnosis changed.	Died.	Invalided from service.	Ret.	Transferred.		Continued to next year.
INJURIES—Continued.											
Abrasion, forearm, "L" (Class XX, Inter. 186).....		2		2							26
Abrasion, hand, "G" (Class XX, Inter. 186).....		1		1							2
Abrasion, hand, "H" (Class XX, Inter. 186).....		3		3							24
Abrasion, hand, "L" (Class XX, Inter. 186).....		13	1	13					1		57
Abrasion, hip, "L" (Class XX, Inter. 186).....			1						1		3
Abrasion, knee, "G" (Class XX, Inter. 186).....		6	2	6					2		59
Abrasion, knee, "GR" (Class XX, Inter. 186).....		1		1							
Abrasion, knee, "I" (Class XX, Inter. 186).....		1		1							3
Abrasion, knee, "J" (Class XX, Inter. 186).....		3		3							29
Abrasion, knee, "L" (Class XX, Inter. 186).....		3		3							15
Abrasion, leg, "G" (Class XX, Inter. 186).....		9	3	9					3		151
Abrasion, leg, "I" (Class XX, Inter. 186).....		1		1							26
Abrasion, leg, "J" (Class XX, Inter. 186).....		1		1							2
Abrasion, leg, "L" (Class XX, Inter. 186).....		8		7					1		29
Abrasion, mouth, "GR" (Class XX, Inter. 186).....		1		1							3
Abrasion, mouth, "L" (Class XX, Inter. 186).....		1		1							2
Abrasion, multiple, "G" (Class XX, Inter. 186).....		5	2	5	1				1		16
Abrasion, multiple, "J" (Class XX, Inter. 186).....		2		2							8
Abrasion, multiple, "L" (Class XX, Inter. 186).....		7	1	8							61
Abrasion, penis, "G" (Class XX, Inter. 186).....		1		1							1
Abrasion, penis, "L" (Class XX, Inter. 186).....		3		2	1						14
Abrasion, scalp, "J" (Class XX, Inter. 186).....		1		1							1
Abrasion, shoulder, "J" (Class XX, Inter. 186).....		1		1							4
Abrasion, thigh, "G" (Class XX, Inter. 186).....		3		3							25
Abrasion, thigh, "J" (Class XX, Inter. 186).....		1		1							3
Abrasion, toe, "I" (Class XX, Inter. 186).....		1	1	1					1		3
Abrasion, toe, "J" (Class XX, Inter. 186).....		1								1	2
Abrasion, toe, "L" (Class XX, Inter. 186).....		10	1	11							79
Abrasion, unqualified, "G" (Class XX, Inter. 186).....		8	3	8					3		114
Abrasion, unqualified, "H" (Class XX, Inter. 186).....		1		1							6
Abrasion, unqualified, "I" (Class XX, Inter. 186).....		1		1							9
Abrasion, unqualified, "J" (Class XX, Inter. 186).....		1		1							6
Abrasion, unqualified, "L" (Class XX, Inter. 186).....		15		15							123
Avulsion of arm, "I" (Class XX, Inter. 186).....			1				1				2
Avulsion of arm, "H" (Class XX, Inter. 186).....		1					1				

LED STATEMENT OF DISEASES AND INJURIES FOR THE  
CALENDAR YEAR 1917—Continued.

	Taken up as—			Disposition.							Number of sick days this year.
	Remaining from last year.	Admitted.	Readmitted.	Duty.	Diagnosis changed.	Died.	Invalided from service.	Ran.	Transferred.	Continued to next year.	
ned.											
" (Class		12	1	8	1		1		2	1	239
" (Class		7		6					1		115
" (Class		1		1							25
" (Class			2						2		21
" (Class			1							1	18
" (Class			1	1							34
(knee)		1	3	1	1				2		15
196)			1				1				101
ass XX,	1	1					1		1		45
ass XX,		1		1							6
bia "L"		1		1							11
ass XX,		1								1	42
"H"	1	4	2	4					2	1	247
" (Class	1			1							16
L" (Class		1		1							26
lass XX,			5	5							29
ass XX,		1		1							14
ass XX,		1								1	15
ass XX,	16	1	16						1		189
ss XX,	2		2								11
ss XX,	1		1								7
ss XX,	27	1	28						1	1	205
ass XX,	1		1								4
ss XX,	16	2	15						2	1	90
ss XX,	1		1								12
ss XX,	2		2								49
ss XX,	1		1								8
ss XX,	6		5							1	30
X, Inter.	5		5								27
ss XX,	21	7	20	3					4	1	275
ss XX,	2		1						1		19
ss XX,	4	1	3						2		23
ss XX,	17	3	15						4	1	108
ss XX,	1		1								17

TABLE 1.—DETAILED STATEMENT OF DISEASES AND INJURIES FOR THE CALENDAR YEAR 1917—Continued.

Diagnoses.	Taken up as—			Disposition.						Number of sick days this year.	
	Remaining from last year.	Admitted.	Readmitted.	Duty.	Diagnosis changed.	Died.	Invalided from service.	Ran.	Transferred.		Continued to next year.
INJURIES—Continued.											
Burn, finger, "L" (Class XX, Inter. 167).		14	2	15					1		15
Burn, foot, "C" (Class XX, Inter. 167).		2		2							2
Burn, foot, "F" (Class XX, Inter. 167).		2		2							2
Burn, foot, "L" (Class XX, Inter. 167).		80	9	82					6	1	1,000
Burn, forearm, "F" (Class XX, Inter. 167).		1		1							1
Burn, forearm, "L" (Class XX, Inter. 167).		22	2	23					1		23
Burn, hand, "C" (Class XX, Inter. 167).		7		6					1		7
Burn, hand, "F" (Class XX, Inter. 167).		2		2							2
Burn, hand, "L" (Class XX, Inter. 167).		61	5	58					6	2	69
Burn, head, "F" (Class XX, Inter. 167).		4		4							4
Burn, head, "L" (Class XX, Inter. 167).		1		1							1
Burn, hip, "F" (Class XX, Inter. 167).		1		1							1
Burn, hip, "L" (Class XX, Inter. 167).		3		3							3
Burn, leg, "C" (Class XX, Inter. 167).		1		1							1
Burn, leg, "F" (Class XX, Inter. 167).		1	2	1					2		3
Burn, leg, "L" (Class XX, Inter. 167).		23	1	21					2	1	24
Burn, mouth, "L" (Class XX, Inter. 167).		1		1							1
Burn, multiple, "C" (Class XX, Inter. 167).		4	1	3					2		5
Burn, multiple, "CR" (Class XX, Inter. 167).		2		2							2
Burn, multiple, "E" (Class XX, Inter. 167).		1		1							1
Burn, multiple, "F" (Class XX, Inter. 167).	7	44	27	55	1	3			15	4	1,110
Burn, multiple, "FS" (Class XX, Inter. 167).		8				8					8
Burn, multiple, "GR" (Class XX, Inter. 167).		1							1		1
Burn, multiple, "L" (Class XX, Inter. 167).	1	99	22	86	2	4			23	7	1,110
Burn, neck, "L" (Class XX, Inter. 167).		4		3					1		4
Burn, penis, "L" (Class XX, Inter. 167).		8	4	6	1				4	1	10
Burn, rectum, "L" (Class XX, Inter. 167).		1		1							1
Burn, scrotum, "L" (Class XX, Inter. 167).		4		3					1		4
Burn, shoulder, "L" (Class XX, Inter. 167).		6	2	7						1	11
Burn, thigh, "C" (Class XX, Inter. 167).		1	1	1						1	2
Burn, thigh, "F" (Class XX, Inter. 167).		1		1							1
Burn, thigh, "L" (Class XX, Inter. 167).		7		7							7
Burn, toes, "L" (Class XX, Inter. 167).		5		4					1		5
Burn, unqualified, "C" (Class XX, Inter. 167).		6	1	7							7
Burn, unqualified, "E" (Class XX, Inter. 167).		1		1							1

DAILY STATEMENT OF DISEASES AND INJURIES FOR THE  
 CALENDAR YEAR 1917—Continued.

	Taken up as—			Disposition.							Number of sick days this year.
	Remaining from last year.	Admitted.	Readmitted.	Duty.	Diagnosis changed.	Died.	Invalided from service.	Ran.	Transferred.	Continued to next year.	
Continued.											
F" (Class		8	4	6	1				5		106
L" (Class	3	82	9	78	1				14	1	823
Class XX,		1		1							
Class XX,		5	2	6					1		58
G" (Class		1	1		1				1		3
I" (Class		2	3	2	1				2		27
L" (Class		1	1		1				1		7
L" (Class		1		1							6
G" (Class		1		1							4
le, "G"		1		1							31
6) L" (Class	1		1	2							70
G" (Class		1							1		
h, "I"		2	1	1					2		8
6) L" (Class		2					2				3
fied, "G"		1	1						1	1	4
6) H" (Class		1		1							4
G" (Class		27	8	24	2				8	1	205
"GR"		1							1		2
6) H" (Class		5		4					1		16
I" (Class		2		2							7
J" (Class		11	3	11					2	1	105
L" (Class		18	6	18					5	1	163
E" (Class		1		1							3
P" (Class		1							1		
G" (Class		10	4	10	1				2	1	108
H" (Class		3	3	5						1	67
I" (Class		17		15						2	166
J" (Class		6	1	2	1				4		6
L" (Class		30	7	36	1						289
M" (Class		9	1	9					1		46
N" (Class		2		2							7
Class XX,		2		2							6
Class XX,		3		3							12
" (Class		10	1	10					1		61

TABLE 1.—DETAILED STATEMENT OF DISEASES AND INJURIES FOR THE CALENDAR YEAR 1917—Continued.

Diagnoses.	Taken up as—			Disposition.						Number of sick days this year.	
	Remaining from last year.	Admitted.	Readmitted.	Duty.	Diagnosis changed.	Died.	Invalided from service.	Ran.	Transferred.		Continued to next year.
INJURIES—Continued.											
Contusion, back, "E" (Class XX, Inter. 186).....		1		1							2
Contusion, back, "F" (Class XX, Inter. 186).....		1							1		3
Contusion, back, "G" (Class XX, Inter. 186).....	65	20	65	1					16	3	725
Contusion, back, "H" (Class XX, Inter. 186).....		2		1					1		2
Contusion, back, "I" (Class XX, Inter. 186).....	9	1	9						1		68
Contusion, back, "J" (Class XX, Inter. 186).....	6	3	6						3		33
Contusion, back, "L" (Class XX, Inter. 186).....	31	19	40				1		8	1	385
Contusion, chest, "G" (Class XX, Inter. 186).....	24	10	25	1					7	1	299
Contusion, chest, "H" (Class XX, Inter. 186).....		2		2							27
Contusion, chest, "I" (Class XX, Inter. 186).....		3		3							17
Contusion, chest, "J" (Class XX, Inter. 186).....	10		7	1					2		43
Contusion, chest, "L" (Class XX, Inter. 186).....	10	2	11						1		96
Contusion, ear, "J" (Class XX, Inter. 186).....		1		1							1
Contusion, ear, "L" (Class XX, Inter. 186).....		2	1	2					1		5
Contusion, elbow, "G" (Class XX, Inter. 186).....	21	6	23						3	1	159
Contusion, elbow, "H" (Class XX, Inter. 186).....		1		1							5
Contusion, elbow, "HS" (Class XX, Inter. 186).....		1		1							20
Contusion, elbow, "I" (Class XX, Inter. 186).....	7	1	8								62
Contusion, elbow, "J" (Class XX, Inter. 186).....		6		5					1		34
Contusion, elbow, "L" (Class XX, Inter. 186).....	11	3	11					1	2		49
Contusion, eye, "F" (Class XX, Inter. 186).....		1		1							1
Contusion, eye, "G" (Class XX, Inter. 186).....		5		5							11
Contusion, eye, "H" (Class XX, Inter. 186).....		1	1	2							7
Contusion, eye, "I" (Class XX, Inter. 186).....		4	2	3					3		23
Contusion, eye, "J" (Class XX, Inter. 186).....		3	1	2	1				1		31
Contusion, eye, "L" (Class XX, Inter. 186).....	41	11	39	1			2		8	2	322
Contusion, face, "E" (Class XX, Inter. 186).....		2		2							6
Contusion, face, "G" (Class XX, Inter. 186).....	11	3	11						3		52
Contusion, face, "H" (Class XX, Inter. 186).....		2		2							7
Contusion, face, "I" (Class XX, Inter. 186).....		2	1	2					1		4
Contusion, face, "J" (Class XX, Inter. 186).....		4		4							9
Contusion, face, "L" (Class XX, Inter. 186).....	15	2	15						1	1	35
Contusion, fingers, "G" (Class XX, Inter. 186).....		5		3					1	1	45
Contusion, fingers, "H" (Class XX, Inter. 186).....		14		12			1		1		84

TABLE STATEMENT OF DISEASES AND INJURIES FOR THE  
 CALENDAR YEAR 1917—Continued.

	Taken up as—			Disposition.						Number of sick days this year.	
	Remaining from last year.	Admitted.	Readmitted.	Duty.	Diagnosis changed.	Died.	Invalided from service.	Ran.	Transferred.		Continued to next year.
Continued.											
I" (Class		37	1	37						1	284
J" (Class		5	1	6							20
L" (Class		36	3	36					3		291
" (Class		10	1	10						1	298
" (Class		36	3	35	1				3		233
" (Class		12	2	11					3		80
Class XX,		102	11	99	2				8	4	870
Class XX,		7	3	8					1	1	49
" (Class		117	26	116	7				17	3	1,084
G" (Class		3	1	4							12
H" (Class		1	2	3							54
I" (Class		7		6					1		22
J" (Class		2	1	2					1		68
L" (Class		12	1	10	1				1	1	78
" (Class		1		1							5
" (Class		10	2	12							59
" (Class		15		15							121
" (Class		21	2	20	1				2		123
" (Class		9	1	9					1		26
" (Class		45	3	45	1				2		262
" (Class		1		1							3
" (Class		18	8	16	1				6	3	140
" (Class		3		3							7
" (Class		2	1	3							62
" (Class		8		8							15
" (Class		22	11	25			1		7		296
Class XX,		22	3	18	1				4	2	185
Class XX,		2		2							7
Class XX,		4		3						1	10
Class XX,		1		1							3
Class XX,		19	6	22					3		310
G" (Class		1		1							5
Class XX,		8		2					1		14
Class XX,		2		2							4

TABLE 1.—DETAILED STATEMENT OF DISEASES AND INJURIES FOR THE CALENDAR YEAR 1917—Continued.

Diagnoses.	Taken up as—			Disposition.						days Number of sick this year.	
	Remaining from last year.	Admitted.	Readmitted.	Duty.	Diagnosis changed.	Died.	Invalided from service.	Ran.	Transferred.		Continued to next year.
INJURIES—Continued.											
Contusion, jaw, "L" (Class XX, Inter. 186)		5	1	5					1		33
Contusion, knee, "F" (Class XX, Inter. 186)		1			1						5
Contusion, knee, "G" (Class XX, Inter. 186)		88	22	83	4				20	5	878
Contusion, knee, "H" (Class XX, Inter. 186)		5	1	5						1	42
Contusion, knee, "I" (Class XX, Inter. 186)		6	2	5					2	1	108
Contusion, knee, "J" (Class XX, Inter. 186)		22	6	19					9		281
Contusion, knee, "K" (Class XX, Inter. 186)		1		1							1
Contusion, knee, "L" (Class XX, Inter. 186)		70	7	68					9		411
Contusion, leg, "G" (Class XX, Inter. 186)		48	10	41	2				12	3	666
Contusion, leg, "H" (Class XX, Inter. 186)		6	1	3	1				2	1	37
Contusion, leg, "I" (Class XX, Inter. 186)		11	5	13	2					1	197
Contusion, leg, "J" (Class XX, Inter. 186)		5	4	8					1		96
Contusion, leg, "L" (Class XX, Inter. 186)		40	11	39	2				9	1	408
Contusion, mouth, "G" (Class XX, Inter. 186)		1		1							4
Contusion, mouth, "L" (Class XX, Inter. 186)		1	1	1					1		11
Contusion, multiple, "E" (Class XX, Inter. 186)		1		1							5
Contusion, multiple, "F" (Class XX, Inter. 186)		3	2	3					2		26
Contusion, multiple, "G" (Class XX, Inter. 186)	1	66	20	62	2				18	5	580
Contusion, multiple, "GR" (Class XX, Inter. 186)		1							1		24
Contusion, multiple, "H" (Class XX, Inter. 186)		1	1	2							7
Contusion, multiple, "I" (Class XX, Inter. 186)	1	9	3	10					2	1	161
Contusion, multiple, "J" (Class XX, Inter. 186)		4	1	2					3		41
Contusion, multiple, "L" (Class XX, Inter. 186)	4	31	14	36	2				10	1	290
Contusion, neck, "G" (Class XX, Inter. 186)		2	3	1	1				3		75
Contusion, neck, "H" (Class XX, Inter. 186)		1	2						2	1	62
Contusion, neck, "I" (Class XX, Inter. 186)		1		1							2
Contusion, neck, "J" (Class XX, Inter. 186)		4		4							25
Contusion, neck, "L" (Class XX, Inter. 186)		1							1		
Contusion, nose, "G" (Class XX, Inter. 186)		1		1							1
Contusion, nose, "H" (Class XX, Inter. 186)		1		1							2
Contusion, nose, "I" (Class XX, Inter. 186)		1		1							1
Contusion, neck, "J" (Class XX, Inter. 186)		1	1	1					1		5
Contusion, neck, "L" (Class XX, Inter. 186)		2	3	3					2		42
Contusion, rectum, "G" (Class XX, Inter. 186)		2	1	2	1						9



ED STATEMENT OF DISEASES AND INJURIES FOR THE  
CALENDAR YEAR 1917—Continued.

ned.	Taken up as—			Disposition.							Number of sick days this year.
	Remaining from last year.	Admitted.	Readmitted.	Duty.	Diagnosed changed.	Died.	Invalided from service.	Ran.	Transferred.	Continued to next year.	
(Class			1	1							1
(Class		11	3	8	1				5		52
(Class		1		1							5
(Class		1		1							2
(Class		9	1	6					3	1	46
(Class		1		1							2
(Class		1		1							19
(Class		31	9	29	1				7	3	329
(Class		3	1	3					1		31
(Class		10	4	13					1		82
(Class		16	3	15	1				2	1	81
(Class		4	1	4					1		15
(Class		1		1							3
(Class		5	1	5					1		36
(Class		11	1	10					2		65
(Class		2		2							14
(Class		13	3	11					3	2	99
(Class		3		3							29
(Class		7		6						1	125
(Class		3		3							14
(Class		23		21					1	1	154
ass XX,		4		4							22
ass XX,		6		5						1	57
ass XX,		9	1	9						1	76
ass XX,		40	4	40			1		2	1	474
ass XX,		64	3	65					2		327
"B"		1		1							2
"E"		3		3							43
"F"		1	1	1					1		14
"G"		6	119	19	121	3			18	2	1,290
"H"		2	12	3	15				2		152
"I"		3	58	3	58	2			4		463
"J"		1	28	8	28	2			7		336
"L"		5	152	19	154	5			16	1	1,293

TABLE 1.—DETAILED STATEMENT OF DISEASES AND INJURIES FOR THE CALENDAR YEAR 1917—Continued.

Diagnoses.	Taken up as—			Disposition.							Number of sick days this year.
	Remaining from last year.	Admitted.	Readmitted.	Duty.	Diagnoses changed.	Died.	Invalided from service.	Ran.	Transferred.	Continued to next year.	
INJURIES—Continued.											
Contusion, wrist, "E" (Class XX, Inter. 186).....		1		1							
Contusion, wrist, "G" (Class XX, Inter. 186).....		7		6					1		
Contusion, wrist, "H" (Class XX, Inter. 186).....		1	1	1	1						
Contusion, wrist, "I" (Class XX, Inter. 186).....		4		4							
Contusion, wrist, "L" (Class XX, Inter. 186).....		13		12					1		
Crush, ankle, "I" (Class XX, Inter. 186).....		1	1	2							
Crush, arm, "E" (Class XX, Inter. 186).....			2		1				1		
Crush, arm, "H" (Class XX, Inter. 186).....	1		2	2					1		
Crush, arm, "I" (Class XX, Inter. 186).....		3	2	2	1				2		
Crush, arm, "L" (Class XX, Inter. 186).....		1	1	2							
Crush, back, "G" (Class XX, Inter. 186).....		1		1							
Crush, chest, "I" (Class XX, Inter. 186).....		3				3					
Crush, chest, "L" (Class XX, Inter. 186).....		1		1							
Crush, finger, "G" (Class XX, Inter. 186).....		1	1	2							
Crush, finger, "H" (Class XX, Inter. 186).....		21	9	21					7	2	
Crush, finger, "I" (Class XX, Inter. 186).....		33	2	27					6	2	
Crush, finger, "L" (Class XX, Inter. 186).....		8	1	8					1		
Crush, foot, "E" (Class XX, Inter. 186).....		1							1		
Crush, foot, "F" (Class XX, Inter. 186).....		1		1							
Crush, foot, "H" (Class XX, Inter. 186).....		1		1							
Crush, foot, "I" (Class XX, Inter. 186).....		9	3	9					3		
Crush, foot, "L" (Class XX, Inter. 186).....		5	6	3	1				5	2	
Crush, forearm, "E" (Class XX, Inter. 186).....		2	1	1					2		
Crush, hand, "H" (Class XX, Inter. 186).....		6		3			2		1		
Crush, hand, "I" (Class XX, Inter. 186).....		8	5	7	1		1		2	2	
Crush, hand, "L" (Class XX, Inter. 186).....		5	2	4	1				1	1	
Crush, knee, "I" (Class XX, Inter. 186).....		1		1							
Crush, leg, "H" (Class XX, Inter. 186).....	1	1		1						1	
Crush, leg, "I" (Class XX, Inter. 186).....	1	5	3	2	2		1		3	1	
Crush, leg, "L" (Class XX, Inter. 186).....	1	2		3							
Crush, multiple, "FS" (Class XX, Inter. 186).....		1				1					
Crush, multiple, "I" (Class XX, Inter. 186).....		1							1		
Crush, pelvis, "L" (Class XX, Inter. 186).....		1		1							
Crush, shoulder, "I" (Class XX, Inter. 186).....			1							1	

DAILY STATEMENT OF DISEASES AND INJURIES FOR THE  
 CALENDAR YEAR 1917—Continued.

	Taken up as—			Disposition.						Number of sick days this year.	
	Remaining from last year.	Admitted.	Readmitted.	Duty.	Diagnosis changed.	Died.	Invalided from service.	Ran.	Transferred.		Continued to next year.
Continued.											
Class XX,		2				2					
Class XX,			1						1		20
Class XX,		1		1							31
Class XX,		2	2	2					2		92
Class XX,	13	1	13		1						193
Class XX,	3		2		1						46
I" (Class	3								3		1
L" (Class	1								1		
G" (Class	1	1					1		1		20
I" (Class		1	1								17
G" (Class		2	1						2	1	26
L" (Class	1	3	2	4			1			1	86
Intra-art), r. 185A)	1	3	3	2			2		3		192
Intra-art), r. 185A)			1	1							30
Intra-art), r. 185A)		4	3	4			1		2		130
Intra-art), r. 185A)		4	2	2			4				87
G" (Class		3	2	1			1		3		72
" H"		1							1		
SA).		1									
J" (Class	1	5	4	6					4		110
L" (Class		2		1						1	85
G" (Class	13	9	10	3			2		7		310
H" (Class		1	2	2					1		66
J" (Class	1	8	3	8			1		3		326
L" (Class		9	6	8	1		2		4		176
I" (Class	1								1		
" (Class	1			1							10
" (Class		2	1	1			1		1		32
" (Class		1	1	2							21
Class XX,			1	1							52
" (Class			1		1						8
" (Class		10	12	9	2		2		9		555
I" (Class		1	1		1				1		1
" (Class		3	1	2					2		90
" (Class		14	12	11	1		2	1	9	2	446

TABLE 1.—DETAILED STATEMENT OF DISEASES AND INJURIES FOR THE CALENDAR YEAR 1917—Continued.

Diagnoses.	Taken up as—			Disposition.						Number of sick days this year.	
	Remaining from last year.	Admitted.	Readmitted.	Duty.	Diagnosis changed.	Died.	Invalided from service.	Ret.	Transferred.		Continued to next year.
INJURIES—Continued.											
Dislocation, metacarpal, "L" (Class XX, Inter. 185A)		4		4							15
Dislocation, metatarsal, "G" (Class XX, Inter. 185A)		1		1							111
Dislocation, metatarsal, "I" (Class XX, Inter. 185A)		1		1							5
Dislocation, metatarsal, "L" (Class XX, Inter. 185A)		1	1	1					1		100
Dislocation, multiple, "G" (Class XX, Inter. 185A)		1							1		3
Dislocation, multiple, "J" (Class XX, Inter. 185A)			1							1	70
Dislocation, nasal, "G" (Class XX, Inter. 185A)			1						1		
Dislocation, nasal, "J" (Class XX, Inter. 185A)			1						1		
Dislocation, phalanx, "G" (Class XX, Inter. 185A)		3		1					1	1	3
Dislocation, phalanx, "I" (Class XX, Inter. 185A)		1		1							7
Dislocation, phalanx, "J" (Class XX, Inter. 185A)		2		2					1		27
Dislocation, phalanx, "L" (Class XX, Inter. 185A)		6	5	6					3	2	128
Dislocation, rib, "G" (Class XX, Inter. 185A)		2		2							11
Dislocation, rib, "J" (Class XX, Inter. 185A)		1		1							4
Dislocation, rib, "L" (Class XX, Inter. 185A)		2	2	1					2	1	101
Dislocation, shoulder, "G" (Class XX, Inter. 185A)	1	42	18	37	1		4		16	3	673
Dislocation, shoulder, "H" (Class XX, Inter. 185A)		1		1							
Dislocation, shoulder, "J" (Class XX, Inter. 185A)		22	7	22			2		5		273
Dislocation, shoulder, "L" (Class XX, Inter. 185A)	1	25	19	28			4		11	2	635
Dislocation, unqualified, "F" (Class XX, Inter. 185A)			1	1							21
Dislocation, unqualified, "G" (Class XX, Inter. 185A)		7	2	6					2	1	194
Dislocation, unqualified, "I" (Class XX, Inter. 185A)		1	2	1					2		33
Dislocation, unqualified, "J" (Class XX, Inter. 185A)		4	3	4					3		208
Dislocation, unqualified, "L" (Class XX, Inter. 185A)		6	7	8					5		144
Dislocation, vertebra, "G" (Class XX, Inter. 185A)		6	4	5			2		1	2	100
Dislocation, vertebra, "J" (Class XX, Inter. 185A)		2	2	1	2	1					30
Dislocation, vertebra, "L" (Class XX, Inter. 185A)	1	4	2	4			3				120
Dislocation, wrist, "G" (Class XX, Inter. 185A)		4	3	6					1		213
Dislocation, wrist, "H" (Class XX, Inter. 185A)		3	3		1		1		4		143
Dislocation, wrist, "I" (Class XX, Inter. 185A)		1		1							19
Dislocation, wrist, "J" (Class XX, Inter. 185A)		1							1		
Dislocation, wrist, "L" (Class XX, Inter. 185A)		6	3	5			1		3		203
Drowning, "A" (Class XX, Inter. 1693)		6					6				
Drowning, "D" (Class XX, Inter. 1693)		116					116				

FILED STATEMENT OF DISEASES AND INJURIES FOR THE  
 CALENDAR YEAR 1917—Continued.

	Taken up as—			Disposition.							Number of sick days this year.
	Remaining from last year.	Admitted.	Readmitted.	Duty.	Diagnosis changed.	Died.	Invalided from service.	Res.	Transferred.	Continued to next year.	
Continued.											
Class XX,		4				4					
Class XX,		19				19					
Class XX,		48				48					
Class XX,			1	1							9
Class XX,		1		1							1
Class XX,		5	1	5					1		25
n femur, er. 185(C)		1							1		2
on tibia, er. 185(C)		1			1						17
at, "C"		1	1	1					1		3
at, "Y"		3	1	3					1		32
at, "K"		1		1							3
at, "L"		157	17	158	2	1			12	1	600
er. 177(A)		1		1							29
er. 177(A)		20	4	20					4		193
er. 177(A)		36	10	9		25			10	2	103
er. 177(A)		20	4	14	1	5			2	2	65
atic, arm, er. 186)		2	4	3					2	1	39
atic, ear, er. 186)		1		1							3
atic, eye, er. 186)		1	1				1		1		36
atic, eye, er. 186)		8	2	8					1	1	165
atic, eye, er. 186)		56	13	55	1		2		11		433
atic, face, er. 186)			1	1							7
atic, face, er. 186)		1		1							3
ic, finger, er. 186)		1	1	1					1		11
atic, foot, er. 186)		1	1	1					1		14
atic, foot, er. 186)		5		5							46
atic, fore- X, Inter.		2	2	2					2		19
atic, fore- Inter. 186)		1							1		
atic, fore- X, Inter.		1							1		
tic, hand, er. 186)		1		1							4
tic, hand, er. 186)		3	1	2					2		4
tic, knee, er. 186)			1	1							21
tic, knee, er. 186)		1	3		1				1	2	46

TABLE 1.—DETAILED STATEMENT OF DISEASES AND INJURIES FOR THE CALENDAR YEAR 1917—Continued.

Diagnoses.	Taken up as—			Disposition.						days Number of sick this year.	
	Remaining from last year.	Admitted.	Readmitted.	Duty.	Diagnosis changed.	Died.	Invalided from service.	Ran.	Transferred.		Continued to next year.
INJURIES—Continued.											
Foreign body, traumatic, larynx, "L" (Class XX, Inter. 186).....		1	1	1					1		5
Foreign body, traumatic, leg, "F" (Class XX, Inter. 186).....		1	1		1				1		19
Foreign body, traumatic, leg, "L" (Class XX, Inter. 186).....		2	1	2					1		21
Foreign body, traumatic, maxilla, "E" (Class XX, Inter. 186).....		1							1		
Foreign body, traumatic, multiple, "F" (Class XX, Inter. 186).....		1		1							1
Foreign body, traumatic, pelvis, "E" (Class XX, Inter. 186).....		1							1		
Foreign body, traumatic, scapula, "E" (Class XX, Inter. 186).....			1	1							13
Foreign body, traumatic, toe, "L" (Class XX, Inter. 186).....		1		1							9
Foreign body, traumatic, unqualified, "E" (Class XX, Inter. 186).....	1		1	1					1		111
Foreign body, traumatic, unqualified, "G" (Class XX, Inter. 186).....		1							1		
Foreign body, traumatic, unqualified, "L" (Class XX, Inter. 186).....	1	17	12	21	1				8		308
Foreign body, traumatic, wrist, "H" (Class XX, Inter. 186).....		1	1	1					1		3
Fracture about ankle, compound, "H" (Class XX, Inter. 185C).....			2	1					1		47
Fracture about ankle, compound, "I" (Class XX, Inter. 185C).....		1	1	2							48
Fracture about ankle, compound, "L" (Class XX, Inter. 185C).....	1						1				153
Fracture about ankle, simple, "A" (Class XX, Inter. 185C).....			1	1							61
Fracture about ankle, simple, "F" (Class XX, Inter. 185C).....			1		1						1
Fracture about ankle, simple, "G" (Class XX, Inter. 185C).....	3	24	21	23	2		2		16	5	1,300
Fracture about ankle, simple, "I" (Class XX, Inter. 185C).....	1	3	2	4					2		220
Fracture about ankle, simple, "J" (Class XX, Inter. 185C).....	1	6	4	7					3	1	334
Fracture about ankle, simple, "L" (Class XX, Inter. 185C).....	3	17	8	15	1		3		8	1	538
Fracture about elbow, compound, "G" (Class XX, Inter. 185C).....		1	2						2	1	27
Fracture about elbow, simple, "G" (Class XX, Inter. 185C).....		5	8	4			1		4	4	306
Fracture about elbow, simple, "H" (Class XX, Inter. 185C).....		2	1		1		1		1		31
Fracture about elbow, simple, "J" (Class XX, Inter. 185C).....		1	1						1	1	2
Fracture about elbow, simple, "L" (Class XX, Inter. 185C).....		3	1	2			1		1		111
Fracture about wrist, compound, "H" (Class XX, Inter. 185C).....		1	1		1				1		46
Fracture about wrist, compound, "L" (Class XX, Inter. 185C).....		1		1							38
Fracture about wrist, simple, "F" (Class XX, Inter. 185C).....		1	1				1		1		22
Fracture about wrist, simple, "G" (Class XX, Inter. 185C).....	2	33	17	32	2		1		14	3	1,121
Fracture about wrist, simple, "H" (Class XX, Inter. 185C).....		5	1	4					1	1	206
Fracture about wrist, simple, "J" (Class XX, Inter. 185C).....	1	4	5	6					3	1	264

**inued.**

Injured.	Taken up as—			Disposition.						Number of sick this year.	days
	Remaining from last year.	Admitted.	Readmitted.	Duty.	Diagnosis changed.	Died.	Invalided from service.	Ran.	Transferred.		
simple, 185C).....		2	3	3			1		1		139
simple, r. 185C).....	1	13	5	10	1		1		7		772
compound, r. 185C).....		1							1		1
compound, r. 185C).....		1					1				
compound, r. 185C).....		1							1		
le, "E".....		1									
C).....		1		1							25
le, "G".....	4	33	21	29	3		1		23	2	1,154
le, "I".....		2	1	1					2		37
le, "J".....		14	9	8	1				12	2	266
le, "L".....	1	15	14	15	4		1		10		712
le, "G".....		3	1	3					1		33
C).....		1		1							10
le, "J".....		2	1	1					2		32
C).....		9	11	8					8	4	332
nd, "G".....	1	1		1			1				55
C).....											
nd, "I".....			1							1	31
le, "G".....	1	12	22	6	2				20	7	1,609
C).....		1								1	69
le, "I".....	1	4	3	1					7		190
le, "L".....	1	6	5	4					5	6	1,513
nd, "II".....		1		1							32
C).....		1								1	182
nd, "L".....			1						1		13
C).....		38	31	20	5		1		30	13	1,526
le, "G".....		1							1		
le, "I".....		5	4	3	1				4	1	140
le, "J".....		15	10	10	3				8	4	712
r, "K".....		2		1					1		63
e, "L".....		18	7	12	1				6	6	660
ound, 185C).....		2	3	1					2	2	389
ound, 185C).....		1							1		
ound, 185C).....	1	1	2	2					2		275
le, "G".....		26	15	16	2			3	13	7	876
le, "H".....		2		1					1		21

TABLE 2.—DETAILED STATEMENT OF DISEASES AND INJURIES FOR THE CALENDAR YEAR 1917—Continued.

Diagnosis.	Taken up as—			Disposition.						Number of sick days this year.	
	Remaining from last year.	Admitted.	Readmitted.	Duty.	Diagnosis changed.	Died.	Invalided from service.	Ran.	Transferred.		Continued to next year.
INJURIES—Continued.											
Fracture, humerus, simple, "I" (Class XX, Inter. 1880)		2							2		
Fracture, humerus, simple, "J" (Class XX, Inter. 1880)		5	9	6	1				4	2	
Fracture, humerus, simple, "L" (Class XX, Inter. 1880)		1	1	1					1		
Fracture, maxilla, compound, "G" (Class XX, Inter. 1880)	1	2	1	2	1				1		
Fracture, maxilla, compound, "I" (Class XX, Inter. 1880)		1	1		1				1		
Fracture, maxilla, compound, "J" (Class XX, Inter. 1880)		3		2					1		
Fracture, maxilla, compound, "L" (Class XX, Inter. 1880)	1	12	14	16			1		9	3	
Fracture, maxilla, simple, "E" (Class XX, Inter. 1880)		1	1	1					1		
Fracture, maxilla, simple, "G" (Class XX, Inter. 1880)		4	6	2	3				5		
Fracture, maxilla, simple, "I" (Class XX, Inter. 1880)		3		2	1						
Fracture, maxilla, simple, "J" (Class XX, Inter. 1880)		3		3							
Fracture, maxilla, simple, "L" (Class XX, Inter. 1880)	4	31	23	27	2				23	6	1,340
Fracture, metacarpal, compound, "E" (Class XX, Inter. 1880)		1		1							
Fracture, metacarpal, compound, "H" (Class XX, Inter. 1880)		2	1	2					1		
Fracture, metacarpal, compound, "I" (Class XX, Inter. 1880)		1	1						1	1	
Fracture, metacarpal, compound, (Class XX, Inter. 1880)		2							2		
Fracture, metacarpal, compound, "L" (Class XX, Inter. 1880)		2	2	2					1	1	
Fracture, metacarpal, simple, "E" (Class XX, Inter. 1880)		2		1						1	
Fracture, metacarpal, simple, "F" (Class XX, Inter. 1880)		1	1	1					1		
Fracture, metacarpal, simple, "G" (Class XX, Inter. 1880)		37	51	31	1				9	1	
Fracture, metacarpal, simple, "H" (Class XX, Inter. 1880)		5	3	2	1		1		3	1	
Fracture, metacarpal, simple, "I" (Class XX, Inter. 1880)		17	5	13	1				6	2	
Fracture, metacarpal, simple, "J" (Class XX, Inter. 1880)		39	11	33	2				11	4	
Fracture, metacarpal, simple, "L" (Class XX, Inter. 1880)		90	30	87	2				19	12	2,008
Fracture, metatarsal, compound, "I" (Class XX, Inter. 1880)			1	1							
Fracture, metatarsal, compound, "L" (Class XX, Inter. 1880)		1		1							
Fracture, metatarsal, simple, "G" (Class XX, Inter. 1880)		7	15	9	2		2		6	3	
Fracture, metatarsal, simple, "H" (Class XX, Inter. 1880)		3		1			1		1		
Fracture, metatarsal, simple, "I" (Class XX, Inter. 1880)		14	6	11			1		5	3	
Fracture, metatarsal, simple, "J" (Class XX, Inter. 1880)		7	6	6	1				5	1	
Fracture, metatarsal, simple, "L" (Class XX, Inter. 1880)		24	11	15	1		2		12	5	
Fracture, multiple, compound, "F" (Class XX, Inter. 1880)			1						1		
Fracture, multiple, compound, "G" (Class XX, Inter. 1880)	1		1				1		1		
Fracture, multiple, compound, "I" (Class XX, Inter. 1880)			1						1		



# LED STATEMENT OF DISEASES AND INJURIES FOR THE CALENDAR YEAR 1917—Continued.

	Taken up as—			Disposition.							Number of sick days this year.
	Remaining from last year.	Admitted.	Readmitted.	Duty.	Diagnosis changed.	Died.	Invalidated from service.	Ran.	Transferred.	Continued to next year.	
med.											
ole, "F"			1	1							77
(C), "G"		1	4	3	1					1	66
ole, "H"			1							1	180
(C), "I"		1		1							13
ole, "L"		1								1	4
ole, "G"		1									
nd, "G"		1	1	1					1		11
(C), "H"		1		1							8
nd, "H"		2		2							1
nd, "L"		6	6	8					4		96
e, "B"			1	1							7
(C), "G"		13	3	11	1				3	1	90
(C), "GR"		2		2							24
ole, "I"		2	1	2					1		8
ole, "J"		11	11	14					7	1	118
(C), "L"		37	12	37					11	1	166
(C), "G"	1	11	6	5	2				8	3	316
ole, "J"		4	1	3			1		1		102
ole, "D"	1	6	3	4			3		2	1	206
nd, "G"		2				1			1		
ole, "G"	1	1	5	1	2				2	2	283
ole, "H"		1		1							35
ole, "I"		1								1	110
ole, "D"		4	1	1			1		2	1	111
ot, com- X, Inter.		1							1		
ot, com- X, Inter.		3	4	2	1				4		91
ot, com- X, Inter.		3	1	2					1	1	76
ot, com- X, Inter.		1		1							20
t, simple, r. 185C)		1		1							7
t, simple, r. 185C)		6		2					2	1	18
t, simple, r. 185C)		5	1	4					2		101
t, simple, r. 185C)	25	8	23	2					6	2	548
t, simple, r. 185C)	3	1	3						1		72

TABLE 1.—DETAILED STATEMENT OF DISEASES AND INJURIES FOR THE CALENDAR YEAR 1917—Continued.

Diagnoses.	Taken up as—			Disposition.						Number of sick days this year.	
	Remaining from last year.	Admitted.	Readmitted.	Duty.	Diagnosis changed.	Died.	Invalided from service.	Retn.	Transferred.		Continued to next year.
INJURIES—Continued.											
Fracture, phalanges, foot, simple, "L" (Class XX, Inter. 185C)...		28	11	25	1				9	4	798
Fracture, phalanges, hand, compound, "E" (Class XX, Inter. 185C).....				3							86
Fracture, phalanges, hand, compound, "G" (Class XX, Inter. 185C).....		3	1	3					1		80
Fracture, phalanges, hand, compound, "H" (Class XX, Inter. 185C).....		8	4	11					1		255
Fracture, phalanges, hand, compound, "I" (Class XX, Inter. 185C).....		20	4	13			1		7	3	344
Fracture, phalanges, hand, compound, "J" (Class XX, Inter. 185C).....		2	1	2	1						13
Fracture, phalanges, hand, compound, "L" (Class XX, Inter. 185C).....		5	2	5					1	1	398
Fracture, phalanges, hand, simple, "E" (Class XX, Inter. 185C).....		2		2							398
Fracture, phalanges, hand, simple, "G" (Class XX, Inter. 185C).....		14	8	14	2				4	2	330
Fracture, phalanges, hand, simple, "H" (Class XX, Inter. 185C).....		11	7	10					7	1	429
Fracture, phalanges, hand, simple, "I" (Class XX, Inter. 185C).....		41	3	35	1				7	1	757
Fracture, phalanges, hand, simple, "J" (Class XX, Inter. 185C).....		28	5	29					4		330
Fracture, phalanges, hand, simple, "L" (Class XX, Inter. 185C).....		45	14	45	3				9	2	821
Fracture, radius, compound, "G" (Class XX, Inter. 185C).....		1	3	2					2		120
Fracture, radius, compound, "L" (Class XX, Inter. 185C).....			1							1	56
Fracture, radius, simple, "G" (Class XX, Inter. 185C).....		67	39	52	4		2		38	10	1,720
Fracture, radius, simple, "H" (Class XX, Inter. 185C).....		15	8	10	1				6	6	374
Fracture, radius, simple, "I" (Class XX, Inter. 185C).....		1	3	1					3		96
Fracture, radius, simple, "J" (Class XX, Inter. 185C).....		16	7	12	2				7	2	315
Fracture, radius, simple, "K" (Class XX, Inter. 185C).....			1	1							36
Fracture, radius, simple, "L" (Class XX, Inter. 185C).....		28	13	18	2				12	9	779
Fracture, radius and ulna, compound, "F" (Class XX, Inter. 185C).....	1						1				331
Fracture, radius and ulna, compound, "G" (Class XX, Inter. 185C).....		2	2		1		1		2		19
Fracture, radius and ulna, compound, "L" (Class XX, Inter. 185C).....		1					1				
Fracture, radius and ulna, simple, "F" (Class XX, Inter. 185C).....		1		1							23
Fracture, radius and ulna, simple, "G" (Class XX, Inter. 185C).....	6	15	12	16			1		15	1	1,261
Fracture, radius and ulna, simple, "H" (Class XX, Inter. 185C).....	1	7	4	6			2	1	2	1	222
Fracture, radius and ulna, simple, "I" (Class XX, Inter. 185C).....	1	2	2	1					2	2	127
Fracture, radius and ulna, simple, "J" (Class XX, Inter. 185C).....		4	4	4					3	1	215
Fracture, radius and ulna, simple, "L" (Class XX, Inter. 185C).....	3	10	18	10	5		1		13	2	1,115

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TABLE 1.—DETAILED STATEMENT OF DISEASES AND INJURIES FOR THE CALENDAR YEAR 1917—Continued.

Diagnoses.	Taken up as—			Disposition.						Number of sick days this year.	
	Remaining from last year.	Admitted.	Readmitted.	Duty.	Diagnoses changed.	Died.	Invalided from service.	Ret.	Transferred.		Continued to next year.
INJURIES—Continued.											
Fracture, phalanges, foot, simple, "L" (Class XX, Inter. 185C).....		28	11	25	1				9	4	738
Fracture, phalanges, hand, com- pound, "E" (Class XX, Inter. 185C).....				3							86
Fracture, phalanges, hand, com- pound, "G" (Class XX, Inter. 185C).....		3	1	3					1		80
Fracture, phalanges, hand, com- pound, "H" (Class XX, Inter. 185C).....		8	4	11					1		255
Fracture, phalanges, hand, com- pound, "I" (Class XX, Inter. 185C).....		20	4	13			1		7	3	244
Fracture, phalanges, hand, com- pound, "J" (Class XX, Inter. 185C).....		2	1	2	1						13
Fracture, phalanges, hand, com- pound, "L" (Class XX, Inter. 185C).....		5	2	5					1	1	83
Fracture, phalanges, hand, simple, "E" (Class XX, Inter. 185C).....		2		2							39
Fracture, phalanges, hand, simple, "G" (Class XX, Inter. 185C).....		14	8	14	2				4	2	320
Fracture, phalanges, hand, simple, "H" (Class XX, Inter. 185C).....		11	7	10					7	1	429
Fracture, phalanges, hand, simple, "I" (Class XX, Inter. 185C).....		41	3	35	1				7	1	757
Fracture, phalanges, hand, simple, "J" (Class XX, Inter. 185C).....		28	5	29					4		380
Fracture, phalanges, hand, simple, "L" (Class XX, Inter. 185C).....		45	14	45	3				9	2	821
Fracture, radius, compound, "G" (Class XX, Inter. 185C).....		1	3	2					2		120
Fracture, radius, compound, "L" (Class XX, Inter. 185C).....			1							1	56
Fracture, radius, simple, "G" (Class XX, Inter. 185C).....		67	39	52	4		2		38	10	1,720
Fracture, radius, simple, "H" (Class XX, Inter. 185C).....		15	8	10	1				6	6	374
Fracture, radius, simple, "I" (Class XX, Inter. 185C).....		1	3	1					3		95
Fracture, radius, simple, "J" (Class XX, Inter. 185C).....		16	7	12	2				7	2	315
Fracture, radius, simple, "K" (Class XX, Inter. 185C).....			1	1							26
Fracture, radius, simple, "L" (Class XX, Inter. 185C).....		28	13	18	2				12	9	779
Fracture, radius and ulna, com- pound, "F" (Class XX, Inter. 185C).....	1						1				331
Fracture, radius and ulna, com- pound, "G" (Class XX, Inter. 185C).....		2	2		1		1		2		19
Fracture, radius and ulna, com- pound, "I" (Class XX, Inter. 185C).....		1					1				
Fracture, radius and ulna, simple, "F" (Class XX, Inter. 185C).....		1		1							23
Fracture, radius and ulna, simple, "G" (Class XX, Inter. 185C).....	6	15	12	16			1		15	1	1,261
Fracture, radius and ulna, simple, "H" (Class XX, Inter. 185C).....	1	7	4	6			2	1	2	1	322
Fracture, radius and ulna, simple, "I" (Class XX, Inter. 185C).....	1	2	2	1					2	2	127
Fracture, radius and ulna, simple, "J" (Class XX, Inter. 185C).....		4	4	4					3	1	215
Fracture, radius and ulna, simple, "L" (Class XX, Inter. 185C).....	3	10	18	10	5		1		13	2	1,115

**TABLE 1.—DETAILED STATEMENT OF DISEASES AND INJURIES FOR THE  
CALENDAR YEAR 1917—Continued.**

[illegible]

TABLE 1.—DETAILED STATEMENT OF DISEASES AND INJURIES FOR THE CALENDAR YEAR 1917—Continued.

Diagnoses.	Taken up as—			Disposition.							Number of sick days this year.
	Remaining from last year.	Admitted.	Readmitted.	Duty.	Diagnosis changed.	Died.	Invalided from service.	Ran.	Transferred.	Continued to next year.	
INJURIES—Continued.											
Fracture, tibia and fibula, compound, "G" (Class XX, Inter. 185C).....	1	3		1			1		1	1	13
Fracture, tibia and fibula, compound, "I" (Class XX, Inter. 185C).....	1	3	10	5					8	1	71
Fracture, tibia and fibula, compound "L" (Class XX, Inter. 185C).....		4	6	5	4		2	1	5	3	69
Fracture, tibia and fibula, compound, "LR" (Class XX, Inter. 185C).....			2		1					1	13
Fracture, tibia and fibula, simple, "G" (Class XX, Inter. 1815C).....	8	19	19	19	4		1		17	5	1,41
Fracture, tibia and fibula, simple, "H" (Class XX, Inter. 185C).....			3		2					1	12
Fracture, tibia and fibula, simple, "I" (Class XX, Inter. 185C).....	3	7	7	3			1		9	4	41
Fracture, tibia and fibula, simple, "J" (Class XX, Inter. 185C).....	1	5	5	3					6	2	35
Fracture, tibia and fibula, simple, "L" (Class XX, Inter. 185C).....	4	13	20	11	3			2	18	3	1,42
Fracture, ulna, compound, "G" (Class XX, Inter. 185C).....		1					1				
Fracture, ulna, simple, "G" (Class XX, Inter. 185C).....		16	7	5	5				11	2	16
Fracture, ulna, simple, "H" (Class XX, Inter. 185C).....			1	1							1
Fracture, ulna, simple, "I" (Class XX, Inter. 185C).....		5	1	1					2	3	13
Fracture, ulna, simple, "J" (Class XX, Inter. 185C).....		9	6	6					7	2	26
Fracture, ulna, simple, "L" (Class XX, Inter. 185C).....		7	1	4			1		1	2	10
Fracture, unqualified, compound, "G" (Class XX, Inter. 185C).....			1	1							
Fracture, unqualified, compound, "H" (Class XX, Inter. 185C).....	1	5	1	3	1				2	1	15
Fracture, unqualified, compound, "I" (Class XX, Inter. 185C).....	4	7	1	11						1	44
Fracture, unqualified, compound, "J" (Class XX, Inter. 185C).....	1	1		2							6
Fracture, unqualified, compound, "L" (Class XX, Inter. 185C).....	1	7	2	8					2		9
Fracture, unqualified, simple, "G" (Class XX, Inter. 185C).....	6	25	13	21	2		5		13	3	1,03
Fracture, unqualified, simple, "H" (Class XX, Inter. 185C).....	2	16	4	16					7		42
Fracture, unqualified, simple, "I" (Class XX, Inter. 185C).....	8	22	8	30	2				6		61
Fracture, unqualified, simple, "J" (Class XX, Inter. 185C).....	7	14	5	20			1	1	3	1	46
Fracture, unqualified, simple, "L" (Class XX, Inter. 185C).....	7	67	12	61	2				20	3	1,25
Fracture, vertebra, simple, "G" (Class XX, Inter. 185C).....		20	17	12	1		1		16	7	66
Fracture, vertebra, simple, "GR" (Class XX, Inter. 185C).....		1							1		8
Fracture, vertebra, simple, "I" (Class XX, Inter. 185C).....	1	3	5				2		6	1	63
Fracture, vertebra, simple, "J" (Class XX, Inter. 185C).....		4	8	2	1				5	4	17
Fracture, vertebra, simple, "L" (Class XX, Inter. 185C).....		6	5	2	2	2			3	2	12
Frostbite, ear, "L" (Class XX, Inter. 178).....		2		1						1	1
Frostbite, finger, "L" (Class XX, Inter. 178).....		3		2						1	1

FILED STATEMENT OF DISEASES AND INJURIES FOR THE  
CALENDAR YEAR 1917—Continued.

	Taken up as—			Disposition.						Number of sick days this year.
	Remaining from last year.	Admitted.	Readmitted.	Duty.	Diagnosis changed.	Died.	Invalided from service.	Ran.	Transferred.	
Continued.										
Class XX,										
(Class XX,		8		6						2
"L" (Class		6		5						1
Class XX,		3		1					1	1
ed, "L"		4	1	3					1	1
(8)		4	3	3		1			2	1
Class XX,		89	3	89	1				2	
traumatic,		1	1	1					1	
ter. 186)		1	1	1					1	
matic, "J"		1	1	1					1	
(8)		1		1						
traumatic,		1		1						
er. 186)		1		1						
matic, "Q"		1		1						
(8)		1		1						
matic, "L"		1		1						
(8)		1		1						
matic, "Q"		1		1						
(8)		1		1						
matic, "J"		1		1						
(8)		1	1	1	1					
matic, "L"		1		1						
(8)		1		1						
matic, "L"		1	1	1					1	
(8)		1		1						
traumatic,		1		1						
ter. 186)		1		1					1	
traumatic,		1		1						
ter. 186)		1	1	2						
traumatic,		2		1					1	
ter. 186)		2		1						
ified, tran-		2		2						
XX, Inter.		2		2						
ified, tran-		2		2						
XX, Inter.										
ified, tran-										
XX, Inter.			1							1
ified, tran-		1	1		1				1	
XX, Inter.		1		1						
ified, tran-		5		3					2	
XX, Inter.		1	1				1		1	
ified, tran-		4	2	2			1		2	1
XX, Inter.		1		1						
int (unquali-		1	1	1					1	
"L" (Class		1	1	1						
conjunctive,		2	1	2					1	
Class XX,										

TABLE 1.—DETAILED STATEMENT OF DISEASES AND INJURIES FOR THE CALENDAR YEAR 1917—Continued.

Diagnoses.	Taken up as—				Disposition.					Number of sick days this year.	
	Remaining from last year.	Admitted.	Readmitted.	Duty.	Diagnosis changed.	Died.	Invalided from service.	Ran.	Transferred.		Continued to next year.
INJURIES—Continued.											
Hemorrhage under conjunctiva, traumatic, "L" (Class XX, Inter. 186).....		4	1	4					1		3
Intracranial injury, "B" (Class XX, Inter. 186).....		1							1		
Intracranial injury, "G" (Class XX, Inter. 186).....		35	26	29	8	2	1		18	3	90
Intracranial injury, "GR" (Class XX, Inter. 186).....		1		1							
Intracranial injury, "I" (Class XX, Inter. 186).....		5	1	3		1			1	1	10
Intracranial injury, "J" (Class XX, Inter. 186).....		13	12	12	1	1			11		24
Intracranial injury, "L" (Class XX, Inter. 186).....	1	31	16	20	2	1	6		15	4	67
Intraspinal injury, "G" (Class XX, Inter. 186).....		7	2	6		1			2		19
Intraspinal injury, "J" (Class XX, Inter. 186).....		1				1					
Multiple injuries, extreme, "CR" (Class XX, Inter. 186).....		1				1					
Multiple injuries, extreme, "F" (Class XX, Inter. 186).....	1	1		1			1				
Multiple injuries, extreme, "G" (Class XX, Inter. 186).....		6	1	1		2			2	2	1
Multiple injuries, extreme, "GR" (Class XX, Inter. 186).....		2				2					
Multiple injuries, extreme, "H" (Class XX, Inter. 186).....		2	4						5	1	20
Multiple injuries, extreme, "I" (Class XX, Inter. 186).....		1				1					
Multiple injuries, extreme, "K" (Class XX, Inter. 186).....		22				22					
Multiple injuries, extreme, "L" (Class XX, Inter. 186).....		4		2		1			1		1
Rupture, intestine, traumatic, "L" (Class XX, Inter. 186).....		1			1						8
Rupture, kidney, traumatic, "G" (Class XX, Inter. 186).....		2	1		1				1	1	
Rupture, lacrimal duct, traumatic, "J" (Class XX, Inter. 186).....		1		1							
Rupture, larynx, traumatic, "H" (Class XX, Inter. 186).....		1	1		1				1		
Rupture, larynx, traumatic, "L" (Class XX, Inter. 186).....		1	1	1					1		1
Rupture, ligament, traumatic, "I" (Class XX, Inter. 186).....		1		1							1
Rupture, ligament, traumatic, "J" (Class XX, Inter. 186).....		2	1	3							1
Rupture, lung, traumatic, "GR" (Class XX, Inter. 186).....		1				1					
Rupture, muscle, traumatic, "G" (Class XX, Inter. 186).....		1		1							
Rupture, muscle, traumatic, "L" (Class XX, Inter. 186).....	1	4	3	4			1		2	1	16
Rupture, tympanum, traumatic, "E" (Class XX, Inter. 186).....		9	1	8	1				1		5
Rupture, tympanum, traumatic, "F" (Class XX, Inter. 186).....		2		2							
Rupture, tympanum, traumatic, "J" (Class XX, Inter. 186).....		3	1	4							5
Rupture, tympanum, traumatic, "L" (Class XX, Inter. 186).....		2	4	2	2				2		1
Rupture, unqualified, traumatic, "G" (Class XX, Inter. 186).....		2		2							
Rupture, unqualified, traumatic, "J" (Class XX, Inter. 186).....		1		1							



DETAILED STATEMENT OF DISEASES AND INJURIES FOR THE  
 CALENDAR YEAR 1917—Continued.

	Taken up as—			Disposition.						Number of sick days this year.	
	Remaining from last year.	Admitted.	Readmitted.	Duty.	Diagnosis changed.	Died.	Invalided from service.	Ran.	Transferred.		Continued to next year.
Continued.											
Traumatic, ser. 156)		2							2		6
Traumatic, "I"			1							1	52
Traumatic, "L"		1	1						1	1	48
Traumatic, "C" (Class		3	1	2		1			1		16
" (Class		2		2							3
Class XX,		1							1		1
Class XX,		345	61	324	11				56	15	3,217
Class XX,		6		6							34
Class XX,		4	1	4						1	72
Class XX,		172	38	166	5				36	3	1,488
Class XX,		2	1	3							70
Class XX,		227	49	218	12		2	1	34	9	2,735
Class XX,	1	24	3	22					4	2	239
Class XX,		1		1							3
Class XX,		1		1							3
Class XX,		2		2							10
Class XX,		12	3	11					4		70
Class XX,		7		5						2	89
Class XX,		7	2	5			1		3		104
Class XX,		1		1							2
Class XX,		2	4	4	1				1		22
Class XX,		79	32	87	2			1	18	3	1,283
Class XX,		79	34	80	3		1		27	2	1,033
Class XX,		1		1							35
Class XX,		58	9	57	1		2		6	1	669
G" (Class		6		6							43
I" (Class		1		1							21
J" (Class		9	2	11							74
L" (Class		17	1	17					1		130
G" (Class		3		3							19
J" (Class		3	1	3	1						19
L" (Class		4	2	5						1	80
" (Class		2	1	1	1				1		7
" (Class		1		1							9
Class XX,		5	4	2	2				5		192

TABLE 1.—DETAILED STATEMENT OF DISEASES AND INJURIES FOR THE CALENDAR YEAR 1917—Continued.

Diagnoses.	Taken up as—			Disposition.							Number of sick days this year.
	Remaining from last year.	Admitted.	Readmitted.	Duty.	Diagnosis changed.	Died.	Invalided from service.	Ran.	Transferred.	Continued to next year.	
INJURIES—Continued.											
Sprain, pelvis, "H" (Class XX, Inter. 185B)		1		1							
Sprain, pelvis, "J" (Class XX, Inter. 185B)		1		1							
Sprain, pelvis, "L" (Class XX, Inter. 185B)		11	5	8	1				5	2	17
Sprain, shoulder, "G" (Class XX, Inter. 185B)		15	3	14					2	2	13
Sprain, shoulder, "H" (Class XX, Inter. 185B)		1		1							
Sprain, shoulder, "I" (Class XX, Inter. 185B)		3		3							2
Sprain, shoulder, "J" (Class XX, Inter. 185B)		19	2	17					3	1	8
Sprain, shoulder, "L" (Class XX, Inter. 185B)		18	1	16					1	2	14
Sprain, unqualified, "F" (Class XX, Inter. 185B)		1							1		
Sprain, unqualified, "G" (Class XX, Inter. 185B)	7	95	21	107	4				10	2	1,20
Sprain, unqualified, "H" (Class XX, Inter. 185B)		3		3							1
Sprain, unqualified, "I" (Class XX, Inter. 185B)	1	1		2							15
Sprain, unqualified, "J" (Class XX, Inter. 185B)	6	61	14	69	2		1		9		82
Sprain, unqualified, "L" (Class XX, Inter. 185B)	8	104	18	102	6				22		1,73
Sprain, vertebral, "G" (Class XX, Inter. 185B)		11	7	12			2		3	1	11
Sprain, vertebral, "I" (Class XX, Inter. 185B)		1							1		3
Sprain, vertebral, "J" (Class XX, Inter. 185B)		3	3	4			1			1	14
Sprain, vertebral, "L" (Class XX, Inter. 185B)		28	11	23			8		5	3	30
Sprain, vertebral, "LS" (Class XX, Inter. 185B)		1		1							
Sprain, wrist, "G" (Class XX, Inter. 185B)	1	85	11	80	2				10	5	69
Sprain, wrist, "H" (Class XX, Inter. 185B)		9	1	8					2		9
Sprain, wrist, "I" (Class XX, Inter. 185B)		4	1	5							2
Sprain, wrist, "J" (Class XX, Inter. 185B)		40	6	40	1				4	1	22
Sprain, wrist, "L" (Class XX, Inter. 185B)		54	2	47	1				3	5	28
Strain, abdominal, "G" (Class XX, Inter. 186)		1	1	2							1
Strain, abdominal, "H" (Class XX, Inter. 186)			1	1							
Strain, abdominal, "J" (Class XX, Inter. 186)		1	1	2							2
Strain, abdominal, "L" (Class XX, Inter. 186)	32	12		30	3				11		23
Strain, ankle, "G" (Class XX, Inter. 186)		3		2					1		
Strain, ankle, "L" (Class XX, Inter. 186)		4		2					2		1
Strain, arm, "G" (Class XX, Inter. 186)		3	1	3					1		6
Strain, arm, "J" (Class XX, Inter. 186)		3	2	3					2		3
Strain, arm, "L" (Class XX, Inter. 186)		3		3							1
Strain, back, "E" (Class XX, Inter. 186)		1	1	1					1		

# LED STATEMENT OF DISEASES AND INJURIES FOR THE CALENDAR YEAR 1917—Continued.

	Taken up as—			Disposition.							Number of sick days this year.
	Remaining from last year.	Admitted.	Readmitted.	Duty.	Diagnosed.	Died.	Invalided from service.	Ran.	Transferred.	Continued to next year.	
ued.											
ss XX,		14	5	15	1				2	1	135
ss XX,			1	1							9
ss XX,		1		1							29
ss XX,		4	1	4					1		16
ss XX,		41	10	46			2		3		430
ss XX,		1								1	12
ss XX,		2	2	4							11
ss XX,		1							1		
ss XX,		4	1	4					1		18
ss XX,		1	1	1					1		3
ss XX,		7		6					1		23
ss XX,			1	1							47
ss XX,		1		1							2
ss XX,		3	1	2					1	1	32
(Class		1		1							25
(Class		1		1							4
ss XX,		1		1							4
(Class		2		2							8
ss XX,		2		2							20
ss XX,			1	1							23
ss XX,		2	1	2						1	27
ss XX,		4	1	4					1		33
ss XX,		5	1	5					1		24
(Class		1		1							10
ss XX,		10	3	9					4		31
ss XX,		5	4	6					3		46
(Class			1	1							23
(Class		1		1							4
(Class		5		5							14
(Class		4	1	3					2		31
ss XX,		1	2	2					1		31
ss XX,		5	2	7							77
ss XX,		9	2	7					3	1	19
(Class		32	4	30	1				5		256

TABLE 1.—DETAILED STATEMENT OF DISEASES AND INJURIES FOR THE CALENDAR YEAR 1917—Continued.

Diagnoses.	Taken up as—			Disposition.							Number of sick days this year.
	Remaining from last year.	Admitted.	Readmitted.	Duty.	Diagnosis changed.	Died.	Invalided from service.	Ran.	Transferred.	Continued to next year.	
INJURIES—Continued.											
Strain, unqualified, "I" (Class XX, Inter. 186).....		2		1					1		2
Strain, unqualified, "J" (Class XX, Inter. 186).....		17	3	14	2				4		97
Strain, unqualified, "L" (Class XX, Inter. 186).....	1	64	13	66	2				7	3	616
Strain, wrist, "G" (Class XX, Inter. 186).....		1		1							3
Strain, wrist, "L" (Class XX, Inter. 186).....		2		1					1		3
Strangulation, "A" (Class XX, Inter. 186).....		6		1		5					3
Strangulation, "I" (Class XX, Inter. 186).....		1				1					1
Strangulation, "L" (Class XX, Inter. 186).....		1		1							2
Submersion (nonfatal), "D" (Class XX, Inter. 169A).....		9	1	8	1				1		36
Submersion (nonfatal), "J" (Class XX, Inter. 169A).....		1		1							4
Sunburn, arms, "L" (Class XX, Inter. 167).....		8	1	9							31
Sunburn, back, "L" (Class XX, Inter. 167).....		1		1							5
Sunburn, foot, "L" (Class XX, Inter. 167).....		1		1							7
Sunburn, legs, "L" (Class XX, Inter. 167).....		6	1	6					1		23
Sunburn, multiple, "J" (Class XX, Inter. 167).....		1		1							22
Sunburn, multiple, "L" (Class XX, Inter. 167).....		10		8					2		33
Sunburn, shoulders, "L" (Class XX, Inter. 167).....		9		8					1		30
Sunburn, unqualified, "L" (Class XX, Inter. 167).....		25	3	26					2		129
Sunstroke, "L" (Class XX, Inter. 179B).....		11	9	12	2				5	1	177
Synovitis, ankle traumatic, "G" (Class XX, Inter. 186).....			3	2	1						73
Synovitis, ankle traumatic, "I" (Class XX, Inter. 186).....		1	1						1	1	4
Synovitis, ankle traumatic, "L" (Class XXX, Inter. 186).....		2		1					1		4
Synovitis, elbow traumatic, "G" (Class XX, Inter. 186).....		1		1							2
Synovitis, elbow traumatic, "J" (Class XX, Inter. 186).....		2	1		1		1		1		66
Synovitis, elbow traumatic, "L" (Class XX, Inter. 186).....		1	1	1					1		19
Synovitis, knee traumatic, "G" (Class XX, Inter. 186).....	1	61	36	52	5		3		32	6	1,098
Synovitis, knee traumatic, "H" (Class XX, Inter. 186).....		6	4	6			1		2	1	260
Synovitis, knee traumatic, "I" (Class XX, Inter. 186).....		4	1	3					2		14
Synovitis, knee traumatic, "J" (Class XX, Inter. 186).....		29	19	33	2				11	2	417
Synovitis, knee traumatic, "K" (Class XX, Inter. 186).....		1								1	21
Synovitis, knee traumatic, "L" (Class XX, Inter. 186).....		56	26	41	3		2		25	11	1,190
Synovitis, metacarpal traumatic, "G" (Class XX, Inter. 186).....		1		1							3
Synovitis, metacarpal traumatic, "L" (Class XX, Inter. 186).....		4	2	4					2		18
Synovitis, metatarsal traumatic, "L" (Class XX, Inter. 186).....		1		1							10

LED STATEMENT OF DISEASES AND INJURIES FOR THE  
CALENDAR YEAR 1917—Continued.

	Taken up as—			Disposition.							Number of sick days this year.
	Remaining from last year.	Admitted.	Readmitted.	Duty.	Diagnosis changed.	Died.	Invalidated from service.	Ran.	Transferred.	Continued to next year.	
continued.											
Automatic, r. 186)		1	1	1					1		18
Automatic, r. 186)		2		2							22
trau- K, Inter.		1			1						27
trau- K, Inter.		11	15	16	1				9		403
trau- K, Inter.	1	1		1					1		19
trau- K, Inter.		9	6	9				1	5		347
trau- K, Inter.		25	8	24					9		179
tic, "G"			2	2							6
tic, "Y"		1	1	1					1		32
tic, "L"		2		1						1	3
ase XX,		16	2	16					2		60
d, trau- K, Inter.		1		1							2
en, "A"		3	2			2			2	1	95
en, "B"		2				2					3
en, "E"		7	5	2		3	2		5		182
en, "L"		1					1				
en, "K"			2						2		6
e, "E"		1		1							74
, "E"	3	9	8	12	1		1		6		500
, "F"		1							1		
, "K"	4		2				4		2		432
) artery ss XX,		1				1					
a, "E"		1	1	1					1		19
k, "A"		1				1					
k, "B"		1				1					
k, "E"		2		1			1				15
n, "A"		19				19					34
n, "B"		1				1					
n, "E"		4	3	3			1		3		147
n, "K"	1	1	1	1		1	1				76

TABLE 1.—DETAILED STATEMENT OF DISEASES AND INJURIES FOR THE CALENDAR YEAR 1917—Continued.

Diagnoses.	Taken up as—			Disposition.							Number of sick days this year.
	Remaining from last year.	Admitted.	Readmitted.	Duty.	Diagnosis changed.	Died.	Invalided from service.	Ran.	Transferred.	Continued to next year.	
INJURIES—Continued.											
Wound, gunshot, eye, "E" (Class XX, Inter. 170).		1	1	1					1		23
Wound, gunshot, eye, "F" (Class XX, Inter. 170).		1		1							
Wound, gunshot, eye, "L" (Class XX, Inter. 170).		1		1							5
Wound, gunshot, face, "A" (Class XX, Inter. 170).		1	1		1				1		17
Wound, gunshot, face, "C" (Class XX, Inter. 170).			1	1							3
Wound, gunshot, face, "E" (Class XX, Inter. 170).		2		1					1		
Wound, gunshot, face, "F" (Class XX, Inter. 170).		3		2					1		
Wound, gunshot, finger, "A" (Class XX, Inter. 170).		1	1		1				1		10
Wound, gunshot, finger, "B" (Class XX, Inter. 170).		1	1						1	1	79
Wound, gunshot, finger, "E" (Class XX, Inter. 170).		17	11	11	1		1		13	2	430
Wound, gunshot, foot, "B" (Class XX, Inter. 170).		1	1						1	1	45
Wound, gunshot, foot, "E" (Class XX, Inter. 170).		10	7	5			1		7	4	574
Wound, gunshot, forearm, "E" (Class XX, Inter. 170).		3	2	1					3	1	115
Wound, gunshot, forearm, "F" (Class XX, Inter. 170).			1	1							12
Wound, gunshot, hand, "B" (Class XX, Inter. 170).		1		1							3
Wound, gunshot, hand, "E" (Class XX, Inter. 170).		17	12	12			2		9	6	730
Wound, gunshot, hand, "G" (Class XX, Inter. 170).		1							1		9
Wound, gunshot, hand, "L" (Class XX, Inter. 170).		1					1				43
Wound, gunshot, heart, "A" (Class XX, Inter. 170).		3				3					
Wound, gunshot, heart, "E" (Class XX, Inter. 170).		2				2					
Wound, gunshot, hip, "B" (Class XX, Inter. 170).			1							1	143
Wound, gunshot, hip, "E" (Class XX, Inter. 170).		2	2	2					1	1	44
Wound, gunshot, knee, "E" (Class XX, Inter. 170).		3							2	1	73
Wound, gunshot, leg, "A" (Class XX, Inter. 170).			1		1						
Wound, gunshot, leg, "B" (Class XX, Inter. 170).			1	1							52
Wound, gunshot, leg, "E" (Class XX, Inter. 170).	7	25	25	29	1	1	4		21	1	1,132
Wound, gunshot, leg, "F" (Class XX, Inter. 170).			1						1		
Wound, gunshot, leg, "K" (Class XX, Inter. 170).	4	1	6	6	1		1		3		452
Wound, gunshot, leg, "L" (Class XX, Inter. 170).	1	2		2					1		41
Wound, gunshot, lung, "A" (Class XX, Inter. 170).		1	2	1		1			1		47
Wound, gunshot, lung, "B" (Class XX, Inter. 170).		1				1					
Wound, gunshot, lung, "E" (Class XX, Inter. 170).			1	1							68
Wound, gunshot, maxilla, "E" (Class XX, Inter. 170).			1	1							21
Wound, gunshot, multiple, "E" (Class XX, Inter. 170).		3	4	3					2	2	96

### ED STATEMENT OF DISEASES AND INJURIES FOR THE CALENDAR YEAR 1917—Continued.

[illegible]

TABLE 1.—DETAILED STATEMENT OF DISEASES AND INJURIES FOR THE CALENDAR YEAR 1917—Continued.

Diagnoses.	Taken up as—			Disposition.							days Number of sick this year.
	Remaining from last year.	Admitted.	Readmitted.	Duty.	Diagnosis changed.	Died.	Invalided from service.	Ran.	Transferred.	Continued to next year.	
INJURIES—Continued.											
Wound, incised, back, "L" (Class XX, Inter. 171).....		4		3					1		
Wound, incised, ear, "G" (Class XX, Inter. 171).....		1		1							
Wound, incised, ear, "L" (Class XX, Inter. 171).....			1	1							
Wound, incised, elbow, "L" (Class XX, Inter. 171).....		1		1							
Wound, incised, eye, "F" (Class XX, Inter. 171).....			2	1					1		
Wound, incised, eye, "G" (Class XX, Inter. 171).....		2		2							
Wound, incised, eye, "H" (Class XX, Inter. 171).....		1	1						2		
Wound, incised, eye, "I" (Class XX, Inter. 171).....		1		1							
Wound, incised, eye, "J" (Class XX, Inter. 171).....		3		3							
Wound, incised, eye, "L" (Class XX, Inter. 171).....		5	3	6			2				
Wound, incised, face, "A" (Class XX, Inter. 171).....		1							1		
Wound, incised, face, "B" (Class XX, Inter. 171).....		2		2							
Wound, incised, face, "E" (Class XX, Inter. 171).....		1		1							
Wound, incised, face, "F" (Class XX, Inter. 171).....		1	1	1					1		
Wound, incised, face, "H" (Class XX, Inter. 171).....		1		1							
Wound, incised, face, "J" (Class XX, Inter. 171).....		1		1							
Wound, incised, face, "L" (Class XX, Inter. 171).....		4	1	4					1		
Wound, incised, finger, "E" (Class XX, Inter. 171).....		1							1		
Wound, incised, finger, "G" (Class XX, Inter. 171).....		2		2							
Wound, incised, finger, "H" (Class XX, Inter. 171).....		18	2	16					2	2	
Wound, incised, finger, "L" (Class XX, Inter. 171).....		45	8	42	1				7	3	
Wound, incised, foot, "E" (Class XX, Inter. 171).....		1								1	
Wound, incised, foot, "H" (Class XX, Inter. 171).....				1							
Wound, incised, foot, "I" (Class XX, Inter. 171).....		2		1					1		
Wound, incised, foot, "J" (Class XX, Inter. 171).....		1		1							
Wound, incised, foot, "L" (Class XX, Inter. 171).....		19	4	19			1		2	1	
Wound, incised, forearm, "A" (Class XX, Inter. 171).....		1	2						2	1	
Wound, incised, forearm, "G" (Class XX, Inter. 171).....		2		2							
Wound, incised, forearm, "H" (Class XX, Inter. 171).....		2		2							
Wound, incised, forearm, "L" (Class XX, Inter. 171).....		3	3	3					2	1	
Wound, incised, hand, "E" (Class XX, Inter. 171).....			1	1							
Wound, incised, hand, "G" (Class XX, Inter. 171).....		3		3							
Wound, incised, hand, "H" (Class XX, Inter. 171).....		6	1	6					1		
Wound, incised, hand, "I" (Class XX, Inter. 171).....		4	1	4					1		



ED STATEMENT OF DISEASES AND INJURIES FOR THE  
CALENDAR YEAR 1917—Continued.

	Taken up as—			Disposition.							Number of sick days this year.
	Remaining from last year.	Admitted.	Readmitted.	Duty.	Diagnosis changed.	Died.	Invalided from service.	Ran.	Transferred.	Continued to next year.	
ned.											
, "L"		22	3	21			1		2	1	330
"(Class		1		1							17
"G"		1		1							5
"L"		6		5						1	80
"(Class		1		1							9
"(Class		5	1	6							59
"(Class		1	1	1						1	70
"(Class		1		1							3
"(Class		14	2	14			1		1		141
, "L"		1		1							
e, "A"			1		1						40
e, "H"		1							1		
e, "L"		2		2							12
, "L"		1	1	2							32
"G"		1		1							3
"H"		1		1							2
"L"		12	2	12					2		42
n, "G"		1	1	1					1		9
r, "L"		2		1					1		91
e, "L"		1		1							6
"G"		3		2						1	69
"H"		2		2							21
"L"		7	4	9					2		265
t, "A"		1							1		
t, "L"		2	2	3					1		28
t, "A"		4	3	3		1			3		83
t, "B"		2	1	2					1		21
t, "L"		2	1	2					1		16
"(Class		1		1							6
"(Class		1		1							1
"(Class		3	1	4							16
nalified, 171)		3	2	2	1				1	1	80
nalified, 171)		1	1	1					1		12
nalified, 171)		1	2				1		2		106

TABLE 1.—DETAILED STATEMENT OF DISEASES AND INJURIES FOR THE CALENDAR YEAR 1917—Continued.

Diagnoses.	Taken up as—			Disposition.							Number of sick days this year.
	Remaining from last year.	Admitted.	Readmitted.	Duty.	Diagnosis changed.	Died.	Invalided from service.	Ran.	Transferred.	Continued to next year.	
INJURIES—Continued.											
Wound, incised, unqualified, "G" (Class XX, Inter. 171).....		4		3					1		36
Wound, incised, unqualified, "H" (Class XX, Inter. 171).....		3		3							29
Wound, incised, unqualified, "I" (Class XX, Inter. 171).....		2		2							13
Wound, incised, unqualified, "L" (Class XX, Inter. 171).....	1	21	5	21					6		230
Wound, incised, wrist, "H" (Class XX, Inter. 171).....		1		1							17
Wound, incised, wrist, "L" (Class XX, Inter. 171).....		3		3							13
Wound, lacerated, abdomen, "G" (Class XX, Inter. 186).....		2	1	1		1			1		34
Wound, lacerated, abdomen, "J" (Class XX, Inter. 186).....	1								1		22
Wound, lacerated, abdomen, "L" (Class XX, Inter. 186).....		3				2			1		
Wound, lacerated, ankle, "G" (Class XX, Inter. 186).....		1		1							5
Wound, lacerated, ankle, "H" (Class XX, Inter. 186).....		1		1							8
Wound, lacerated, ankle, "J" (Class XX, Inter. 186).....		1								1	4
Wound, lacerated, ankle, "L" (Class XX, Inter. 186).....		4	1	4					1		13
Wound, lacerated, arm, "E" (Class XX, Inter. 186).....		1		1							5
Wound, lacerated, arm, "F" (Class XX, Inter. 186).....		2	1	1					1	1	153
Wound, lacerated, arm, "G" (Class XX, Inter. 186).....		10	4	9	2				2	1	164
Wound, lacerated, arm, "H" (Class XX, Inter. 186).....	4	21	4	23	1				4	1	333
Wound, lacerated, arm, "I" (Class XX, Inter. 186).....	2	14	1	15			1		1		273
Wound, lacerated, arm, "J" (Class XX, Inter. 186).....		7		6					1		101
Wound, lacerated, arm, "L" (Class XX, Inter. 186).....	2	31	2	29			1		5		194
Wound, lacerated, avilla, "G" (Class XX, Inter. 186).....		1		1							4
Wound, lacerated, back, "L" (Class XX, Inter. 186).....		1		1							7
Wound, lacerated, chest, "A" (Class XX, Inter. 186).....									1		6
Wound, lacerated, ear, "G" (Class XX, Inter. 186).....		3		2						1	11
Wound, lacerated, ear, "H" (Class XX, Inter. 186).....		1		1							2
Wound, lacerated, ear, "I" (Class XX, Inter. 186).....		1		1							6
Wound, lacerated, ear, "L" (Class XX, Inter. 186).....		5	2	5					2		11
Wound, lacerated, elbow, "G" (Class XX, Inter. 186).....		4		4							23
Wound, lacerated, elbow, "I" (Class XX, Inter. 186).....		1	1	1					1		55
Wound, lacerated, elbow, "L" (Class XX, Inter. 186).....		2		2							4
Wound, lacerated, eye, "F" (Class XX, Inter. 186).....		5	4	1			1		5	2	108
Wound, lacerated, eye, "G" (Class XX, Inter. 186).....		7		6					1		38
Wound, lacerated, eye, "GR" (Class XX, Inter. 186).....		1		1							7
Wound, lacerated, eye, "J" (Class XX, Inter. 186).....		3		2					1		7
Wound, lacerated, eye, "K" (Class XX, Inter. 186).....		1		1							3

DAILY STATEMENT OF DISEASES AND INJURIES FOR THE  
 CALENDAR YEAR 1917—Continued.

	Taken up as—			Disposition.							Number of sick days this year.
	Remaining from last year.	Admitted.	Readmitted.	Duty.	Diagnosed changed.	Died.	Invalidated from service.	Ran.	Transferred.	Continued to next year.	
Continued.											
eye, "L"		33	10	26	2		2		11	2	625
face, "E"			1	1							7
face, "F"		1	2	1					2		20
face, "G"		9	2	9					2		53
face, "H"		1		1							4
face, "I"		1		1							3
face, "J"		2	1	3							9
face, "L"		22		22					1		62
nerve, "E"		7		7							128
nerve, "G"		6	1	5					2		40
nerve, "H"		85	8	75	3				7	8	1,291
nerve, "I"		104	9	100	1		1		5	6	1,193
nerve, "J"		8	1	8					1		113
nerve, "L"		89	10	84	3				5	7	1,133
oot, "E"		2		2							26
oot, "G"		3		3							58
oot, "H"		9	4	11			1		1		214
oot, "I"		11	2	10					2	1	273
oot, "J"		9		9							70
oot, "L"		47	6	45					6	2	439
arm, "B"		1							1		21
arm, "G"		2		2							24
arm, "H"		4	1	5							70
arm, "I"			1	1							86
arm, "L"		4	1	4					1		70
and, "E"		1		1							6
and, "G"		13	2	13	1				1		276
and, "H"		30	4	26	2				5	1	368
and, "I"		21	4	19			1		3	2	469
and, "J"		4	1	4					1		33
and, "L"		64	14	63	1				13	1	1,008
hip, "L"		2		1					1		7
nee, "G"		11	1	10						2	189
nee, "H"		3		1			1			1	4

Diagnoses.	Taken up as—			Disposition.							Number of sick days that year.
	Remaining from last year.	Admitted.	Readmitted.	Duty.	Diagnosis changed.	Died.	Invalided from service.	Ran.	Transferred.	Continued to next year.	
<b>INJURIES—Continued.</b>											
Wound, lacerated, knee, "J" (Class XX, Inter. 186)		1	2	3							33
Wound, lacerated, knee, "K" (Class XX, Inter. 186)			1						1		15
Wound, lacerated, knee, "L" (Class XX, Inter. 186)		6	1	4					3		47
Wound, lacerated, leg, "F" (Class XX, Inter. 186)		1		1							7
Wound, lacerated, leg, "G" (Class XX, Inter. 186)		53	17	56					11	3	269
Wound, lacerated, leg, "H" (Class XX, Inter. 186)	1	9	5	10	1				3	1	32
Wound, lacerated, leg, "I" (Class XX, Inter. 186)		6	2	6	1				1		27
Wound, lacerated, leg, "J" (Class XX, Inter. 186)		5	1	6							31
Wound, lacerated, leg, "L" (Class XX, Inter. 186)	2	48	18	47	4		1		12	4	373
Wound, lacerated, mouth, "G" (Class XX, Inter. 186)		5	1	6							27
Wound, lacerated, mouth, "OR" (Class XX, Inter. 186)		1		1							1
Wound, lacerated, mouth, "OS" (Class XX, Inter. 186)		1		1							6
Wound, lacerated, mouth, "J" (Class XX, Inter. 186)		3		2					1		19
Wound, lacerated, mouth, "L" (Class XX, Inter. 186)		10		9					1		23
Wound, lacerated, multiple, "A" (Class XX, Inter. 186)		1							1		
Wound, lacerated, multiple, "E" (Class XX, Inter. 186)			1						1		4
Wound, lacerated, multiple, "F" (Class XX, Inter. 186)		6	5	5					5	1	68
Wound, lacerated, multiple, "G" (Class XX, Inter. 186)		3	2	4					1		23
Wound, lacerated, multiple, "H" (Class XX, Inter. 186)		1		1							20
Wound, lacerated, multiple, "J" (Class XX, Inter. 186)		1		1							3
Wound, lacerated, multiple, "L" (Class XX, Inter. 186)		1	2	2		1					13
Wound, lacerated, neck, "E" (Class XX, Inter. 186)		1		1							13
Wound, lacerated, neck, "GU" (Class XX, Inter. 186)		1		1							6
Wound, lacerated, neck, "I" (Class XX, Inter. 186)	1	2	1	3					1		29
Wound, lacerated, nose, "F" (Class XX, Inter. 186)		1		1							5
Wound, lacerated, nose, "G" (Class XX, Inter. 186)		5	1	5					1		24
Wound, lacerated, nose, "OR" (Class XX, Inter. 186)		2		2							12
Wound, lacerated, nose, "H" (Class XX, Inter. 186)		1		1							4
Wound, lacerated, nose, "I" (Class XX, Inter. 186)		3	2	3					2		46
Wound, lacerated, penis, "J" (Class XX, Inter. 186)		1		1							6
Wound, lacerated, rectum, "I" (Class XX, Inter. 186)		1	1	2							43
Wound, lacerated, scalp, "B" (Class XX, Inter. 186)		1		1							2
Wound, lacerated, scalp, "F" (Class XX, Inter. 186)		1	2	2					1		122
Wound, lacerated, scalp, "G" (Class XX, Inter. 186)		45	10	46					8	1	538

Continued.

[illegible]

TABLE 1.—DETAILED STATEMENT OF DISEASES AND INJURIES FOR THE CALENDAR YEAR 1917—Continued.

Diagnoses.	Taken up as—			Disposition.							Number of sick days this year.
	Remaining from last year.	Admitted.	Readmitted.	Duty.	Diagnosis changed.	Died.	Invalided from service.	Ran.	Transferred.	Continued to next year.	
INJURIES—Continued.											
Wound, punctured, abdomen, "L" (Class XX, Inter. 171).....		4	2	4					1	1	
Wound, punctured, ankle, "J" (Class XX, Inter. 171).....		1	1	1					1		
Wound, punctured, arm, "F" (Class XX, Inter. 171).....		2		2							
Wound, punctured, arm, "L" (Class XX, Inter. 171).....	1	7		7	1						
Wound, punctured, back, "B" (Class XX, Inter. 171).....		1		1							
Wound, punctured, back, "L" (Class XX, Inter. 171).....		1	1	1					1		
Wound, punctured, chest, "A" (Class XX, Inter. 171).....		1	2	1					1	1	
Wound, punctured, chest, "B" (Class XX, Inter. 171).....		1	1	1					1		
Wound, punctured, chest, "L" (Class XX, Inter. 171).....		1		1							
Wound, punctured, ear, "L" (Class XX, Inter. 171).....		2		2							
Wound, punctured, eye, "F" (Class XX, Inter. 171).....		1							1		
Wound, punctured, eye, "H" (Class XX, Inter. 171).....		1					1				
Wound, punctured, eye, "J" (Class XX, Inter. 171).....		1							1		
Wound, punctured, eye, "L" (Class XX, Inter. 171).....		7	5	5					6	1	18
Wound, punctured, finger, "E" (Class XX, Inter. 171).....			1	1							
Wound, punctured, finger, "H" (Class XX, Inter. 171).....		1		1							
Wound, punctured, finger, "I" (Class XX, Inter. 171).....		1		1							
Wound, punctured, finger, "L" (Class XX, Inter. 171).....		8		7						1	7
Wound, punctured, foot, "E" (Class XX, Inter. 171).....		1							1		
Wound, punctured, foot, "G" (Class XX, Inter. 171).....		1		1							
Wound, punctured, foot, "H" (Class XX, Inter. 171).....			1	1							
Wound, punctured, foot, "I" (Class XX, Inter. 171).....		2		2							
Wound, punctured, foot, "J" (Class XX, Inter. 171).....		2	1	2					1		
Wound, punctured, foot, "L" (Class XX, Inter. 171).....		77	8	78					6	1	53
Wound, punctured, forearm, "L" (Class XX, Inter. 171).....		4		4							
Wound, punctured, hand, "G" (Class XX, Inter. 171).....		3		3							
Wound, punctured, hand, "H" (Class XX, Inter. 171).....		2		2							
Wound, punctured, hand, "L" (Class XX, Inter. 171).....		12	1	13							
Wound, punctured, knee, "H" (Class XX, Inter. 171).....			1	1							
Wound, punctured, knee, "L" (Class XX, Inter. 171).....		2	1	2					1		
Wound, punctured, leg, "J" (Class XX, Inter. 171).....		1		1							
Wound, punctured, leg, "L" (Class XX, Inter. 171).....	1	18	3	20	1				1		17
Wound, punctured, multiple, "L" (Class XX, Inter. 171).....		2		1						1	
Wound, punctured, rectum, "G" (Class XX, Inter. 171).....			1						1		

# MAILED STATEMENT OF DISEASES AND INJURIES FOR THE CALENDAR YEAR 1917—Continued.

	Taken up as—		Disposition.							Number of sick days this year.	
	Remaining from last year.	Admitted.	Readmitted.	Duty.	Diagnosis changed.	Died.	Invalided from service.	Ran.	Transferred.		Continued to next year.
Continued.											
ectum, "L"		2		2							3
scalp, "L"			1	1							1
thigh, "F"		1		1							14
thigh, "L"		5	2	4					2	1	80
throat, "L"		1		1							1
toe, "L"		1		1							2
unqualified, inter. 171)		1	1	1					1		20
unqualified, inter. 171)		1	1	1					1		23
unqualified, inter. 171)		1		1							
unqualified, inter. 171)		2	1	2					1		22
unqualified, inter. 171)		2	1	1					2		78
unqualified, inter. 171)		1		1							24
unqualified, inter. 171)	1	19	4	20			1		3		839
Class XXI,		4	1	4		1					13
Class XXI,		3		3							3
Class XXI,		21	3	20	1				3		122
hesia, "L" (168B)		1		1							1
side-oxygen- "L" (Class		1				1					
anic, acute, inter. 165B)		1				1					
ute, "L" (56)	6	253	97	262	9			1	82	2	1,224
onic, "L" (56)		21	15	19	1	1	3		11	1	289
rsan), acute, inter. 165B)		1				1					
xide, acute, inter. 168)		1	1			1			1		2
ute, "L" (59)		2		2							6
ute, "A" (59)		1	1			1			1		
ute, "L" (59)		5	3	4	2		1		1		32
onic, "L" (59)		8	5	3	1		3		6		182
acute, "L" (168)			1	1							3
"A" (Class		1	1	1					1		15
"L" (Class		20	3	20		1			2		92
acute, "L" (164)		82	6	82					6		207
ble, acute, inter. 164)		5	2	7							30

TABLE 1.—DETAILED STATEMENT OF DISEASES AND INJURIES FOR THE CALENDAR YEAR 1917—Continued.

Diagnoses.	Taken up as—			Disposition.							Number of sick days this year.
	Remaining from last year.	Admitted.	Readmitted.	Duty.	Diagnoses changed	Died.	Invalided from service.	Ran.	Transferred.	Continued to next year.	
POISONS—Continued.											
Poison, gasoline (inhaled), acute, "L" (Class XXI, Inter. 168).....		11	3	11			1		1	1	47
Poison, heroin, acute, "L" (Class XXI, Inter. 59).....		3	3	1		1	1		3		49
Poison, heroin, chronic, "L" (Class XXI, Inter. 59).....		11	9	3			7		9	1	196
Poison, illuminating gas, acute, "A" (Class XXI, Inter. 168).....		3	1	1		2				1	3
Poison, illuminating gas, acute, "L" (Class XXI, Inter. 168).....		4	2	2		3			1		10
Poison, kerosene, acute, "L" (Class XXI, Inter. 165B).....		7	4	5					6		75
Poison, kerosene, chronic, "L" (Class XXI, Inter. 165B).....		4	4	5					3		120
Poison, lead, acute, "L" (Class XXI, Inter. 165B).....	1	19	5	22					3		249
Poison, lead, chronic, "L" (Class XXI, Inter. 57).....	1	21	14	26			1		9		401
Poison, marsh gas (bilge), acute, "L" (Class XXI, Inter. 168).....		1		1							7
Poison, mercuric chloride, acute, "A" (Class XXI, Inter. 165B).....		5	4	4		2			3		57
Poison, mercuric chloride, acute, "L" (Class XXI, Inter. 165B).....		8	2	4		1			4	1	32
Poison, morphine, acute, "L" (Class XXI, Inter. 59).....		4	4	2	1				5		103
Poison, morphine, chronic, "L" (Class XXI, Inter. 59).....		15	8	5	1		6		8	3	257
Poison, opium, acute, "A" (Class XXI, Inter. 59).....		1		1							2
Poison, opium, acute, "L" (Class XXI, Inter. 59).....		3	4	2		1			4		63
Poison, opium, chronic, "L" (Class XXI, Inter. 59).....	2	2	1	1			2		1	1	53
Poison, Paris green, acute, "L" (Class XXI, Inter. 165B).....		1	1						1	1	12
Poison, phenol, acute, "A" (Class XXI, Inter. 165B).....		3		2		1					7
Poison, phenol, acute, "L" (Class XXI, Inter. 165B).....		1				1					
Poison, ptomaine, acute, "L" (Class XXI, Inter. 164).....		18	5	20					3		94
Poison, serum (antidiphtheritic), acute, "L" (Class XXI, Inter. 165B).....		1				1					
Poison, snake venom, acute, "L" (Class XXI, Inter. 165A).....		1		1							2
Poison, strychnine, acute, "A" (Class XXI, Inter. 165B).....		1				1					
Poison, strychnine, acute, "L" (Class XXI, Inter. 165B).....		1	1		1				1		1
Poison, tobacco, chronic, "L" (Class XXI, Inter. 59).....		1								1	11
Poison, unqualified, acute, "A" (Class XXI, Inter. 165B).....		8	2	4	2	1			3		48
Poison, unqualified, acute, "L" (Class XXI, Inter. 165B).....		85	20	79	6				20		332
Poison, zinc, acute, "L" (Class XXI, Inter. 165B).....		1		1							10
FEMALE DISEASES.											
Abortion (Class XXII, Inter. 134B).....		1		1							10
Amenorrhoea (Class XXII, Inter. 130B).....		1		1							3
Anteflexion of uterus (Class XXII, Inter. 130B).....			1	1							10



ANNUAL STATEMENT OF DISEASES AND INJURIES FOR THE  
CALENDAR YEAR 1917—Continued.

	Taken up as—			Disposition.							Number of sick days this year.
	Remaining from last year.	Admitted.	Readmitted.	Duty.	Diagnosis changed.	Died.	Invalided from service.	Ran.	Transferred.	Continued to next year.	
ES—Contd.											
Class XXII,		50		50							91
to (Class		1	1	1					1		8
Class XXII,		1					1				
XXII, Inter.		1		1							4
XXII, Inter.		1					1				
Class XXII,		1								1	2

SUMMARY.

and comparative rates with previous years.	Entire service, calendar year 1917.	Average entire service, 10 years, 1907-1916.
245,590	60,849	
195,316	53,677	
795 32	882.13	
1,072	295	
4.36	4.84	
5,063	1,453	
20.61	23.87	
1,954,278	634,148	
7,957.80	10,421.66	

## DISTRIBUTION AMONG OCCUPATIONAL GROUPS.

TABLE 2.—Table showing distribution of diseases and injuries among occupation and admission rates, deaths and death rates, invalided from service and in-

Class No.	Class.	Officers.		Artificers.				Miscellaneous force.	
		Navy and marine.	Mid-shipmen.	Electricians.	Engine room.	Fire room.	All others.	Clerical.	Culinary.
	Average complement...	14,104	3,315	7,537	12,888	41,722	6,336	5,152	13,750
1	Diseases of blood.....			5	4	6		3	2
	Rate per 1,000.....			0.66	0.31	0.14		0.68	0.14
2	Diseases of circulatory system.	30	2	23	56	153	16	33	53
	Rate per 1,000.....	2.12	0.60	3.05	4.34	3.66	2.52	6.40	3.85
3	Disease of digestive system.....	741	677	622	972	3,411	500	674	901
	Rate per 1,000.....	52.53	204.22	82.52	75.41	81.75	78.91	130.82	65.52
4	Diseases of ductless glands and spleen.	5		2	6	19		4	1
	Rate per 1,000.....	0.34		0.26	0.46	0.45		0.77	0.07
5	Diseases of ear.....	24	13	52	68	348	43	31	45
	Rate per 1,000.....	1.70	3.92	6.89	5.27	8.34	6.78	6.01	3.27
6	Diseases of eye and adnexa.....	70	200	57	72	262	40	76	47
	Rate per 1,000.....	4.97	60.30	7.56	5.58	6.27	6.31	14.75	3.41
7	Diseases of genito-urinary system (nonvenereal).	64	28	132	163	539	73	86	152
	Rate per 1,000.....	4.53	8.44	17.51	12.64	12.91	11.52	16.69	11.05
8	Diseases of infective type (nonvenereal).	1,015	1,408	1,086	1,809	7,158	740	1,021	1,503
	Rate per 1,000.....	71.96	425.03	144.08	106.21	171.56	116.79	198.17	109.30
9	Diseases of infective type (venereal).	74	6	542	1,096	4,850	590	388	1,404
	Rate per 1,000.....	5.24	1.80	71.91	85.04	116.24	93.11	75.31	102.10
10	Diseases of lymphatic system.	19	7	22	45	202	32	16	40
	Rate per 1,000.....	1.34	2.11	2.91	3.49	4.84	5.05	3.10	2.90
11	Diseases of mind.....	18	2	12	34	190	22	25	46
	Rate per 1,000.....	1.27	0.60	1.59	2.63	4.55	3.47	4.85	3.34
12	Diseases of motor system.....	37	7	63	94	366	61	35	87
	Rate per 1,000.....	2.62	2.11	8.35	7.29	8.77	9.62	6.79	6.32
13	Diseases of nervous system.....	108	41	40	87	245	46	66	61
	Rate per 1,000.....	7.65	12.36	5.30	6.75	5.87	7.26	12.81	4.43
14	Diseases of respiratory system.	339	98	296	383	1,332	181	281	313
	Rate per 1,000.....	24.03	29.56	39.27	29.71	31.92	28.55	54.54	22.76
15	Diseases of skin, hair, and nails.	46	39	34	53	239	34	34	49
	Rate per 1,000.....	3.26	11.76	4.51	4.11	5.72	5.36	6.59	3.56
16	Hernia.....	26	2	44	76	188	32	42	41
	Rate per 1,000.....	1.84	0.60	5.83	5.89	4.50	5.05	8.15	2.98
17	Miscellaneous diseases and conditions.	132	99	85	208	575	118	166	196
	Rate per 1,000.....	9.35	29.86	11.27	16.13	13.78	18.62	32.22	14.25
18	Parasites.....	23	134	52	64	192	19	34	98
	Rate per 1,000.....	1.63	40.42	6.89	4.96	4.60	2.99	6.59	7.12
19	Tumors.....	9	5	15	10	40	8	10	5
	Rate per 1,000.....	0.63	1.50	1.99	0.77	0.95	1.26	1.94	0.36
20	Wounds and other injuries.....	308	204	250	655	2,058	347	166	406
	Rate per 1,000.....	21.83	61.53	33.16	50.82	49.32	54.76	32.22	29.67
21	Poisons.....	32	1	22	51	130	42	27	30
	Rate per 1,000.....	2.26	0.30	2.91	3.95	3.11	6.62	5.24	2.18
22	Female diseases.....							11.06	
	Rate per 1,000.....								
23	Total for all classes.....	3,120	2,974	3,456	5,566	22,503	2,944	3,275	5,482
	Rate per 1,000.....	221.21	897.13	458.53	431.87	539.35	464.64	635.67	398.69
24	Deaths.....	60	1	41	62	170	23	27	28
	Rate per 1,000.....	3.57	0.30	5.43	4.81	4.07	3.61	5.24	2.03
25	Suicides.....	7		1	2	8	1	2	2
	Rate per 1,000.....	0.49		0.13	0.15	0.19	0.15	0.38	0.14
26	Invalided from service.....	71		131	220	884	116	118	225
	Rate per 1,000.....	5.03		17.38	17.07	20.70	18.30	22.90	16.36
27	Total sick days.....	55,984	16,137	63,253	84,836	319,784	47,818	47,885	90,106
28	Damage.....	214.01	44.80	259.19	373.62	1,392.08	197.61	203.65	37.48

## DISTRIBUTION AMONG OCCUPATIONAL GROUPS.

*tional groups of the personnel for the calendar year 1917, by classified admissions  
killed rates, suicides and suicide rates, sick days, and the computed damage.*

Miscellaneous force—Continued.				Seamen branch.			Totals for all occupations.					Class No.
Hospital.	Ma- rines.	Musi- cians.	Pris- oners.	Ap- pren- tices.	Ord- nance.	All others.	Num- ber.	Deaths.	Inva- lided from serv- ice.	Sick days.	Dam- age.	
4,901	33,256	7,056	2,808	10,489	7,574	74,692	245,580					
	10			5		16	51	2	7	1,623	7.85	1
	0.30			0.47		0.21	0.20	0.008	0.02			
20	127	15	1	161	11	266	967	38	465	23,924	315.81	2
4.07	3.81	2.12	0.35	15.34	1.45	3.56	3.53	0.15	1.89			
706	2,504	269	265	2,149	255	7,319	21,965	34	152	197,930	633.10	3
144.05	75.29	38.12	94.37	204.88	33.66	97.98	80.44	0.13	0.61			
5	7	1	1	14		26	91		51	2,998	38.89	4
1.02	0.21	0.14	0.35	1.33		0.34	0.37		0.21			
62	230	18	28	360	26	623	1,976	1	336	46,783	304.94	5
12.65	6.91	2.55	9.97	34.32	3.43	8.40	8.04	0.004	1.36			
25	191	9	14	152	28	522	1,775		281	30,299	222.98	6
7.14	5.74	1.27	4.98	14.49	3.69	6.98	7.22		1.14			
117	390	44	26	600	41	1,003	3,464	16	224	55,740	270.38	7
23.61	11.72	6.23	9.25	57.20	5.41	13.50	14.10	0.06	0.91			
1,634	5,247	418	208	7,846	310	13,742	44,708	210	524	722,252	2,344.65	8
333.40	157.77	59.24	74.07	748.02	40.92	183.98	182.04	0.85	2.13			
224	3,733	225	102	1,673	309	6,570	21,786	3	169	231,254	717.03	9
45.70	112.25	31.88	36.68	159.50	40.79	87.98	88.71	0.01	0.68			
33	201	10	9	67	16	264	965		1	23,335	64.34	10
6.73	6.10	1.41	3.20	6.38	2.11	3.53	4.01		0.004			
29	119	7	17	199	9	247	976	8	643	38,782	431.48	11
5.91	3.57	0.99	6.05	18.97	1.18	3.30	3.97	0.03	2.62			
32	285	15	20	264	14	710	2,110	3	797	47,219	528.48	12
10.61	8.56	2.12	7.12	25.16	1.84	9.50	8.59	0.01	3.24			
34	194	8	20	171	16	401	1,538	62	520	45,823	415.27	13
6.91	5.83	1.11	7.12	16.30	2.11	5.36	6.26	0.25	2.11			
367	1,067	99	43	1,745	64	2,782	9,390	265	166	159,132	649.45	14
74.88	32.08	14.01	15.31	166.36	8.45	37.24	38.23	1.07	0.67			
39	315	14	28	137	12	422	1,495	1	23	23,306	77.84	15
7.95	9.47	1.98	9.97	13.06	1.58	5.64	6.08	0.004	0.11			
38	118	16	9	266	20	320	1,238		203	40,991	212.91	16
7.75	3.54	2.28	3.20	25.35	2.63	4.28	5.04		0.82			
217	310	35	23	683	23	861	3,773	4	252	71,863	323.18	17
50.39	9.32	4.96	10.32	65.11	3.82	11.52	15.36	0.01	1.02			
24	285	27	31	238	17	402	1,640	2	2	20,238	57.22	18
4.89	8.59	3.81	11.03	22.63	2.24	5.38	6.67	0.008	0.008			
5	34	4	1	12	5	50	219	13	8	5,220	24.06	19
1.02	1.02	0.56	0.35	1.14	0.66	0.74	0.89	0.05	0.03			
150	1,306	58	70	822	203	3,775	10,480	367	204	160,934	338.65	20
30.60	39.27	8.21	24.92	49.76	26.80	50.54	42.67	1.57	0.83			
18	134	6	4	13	15	150	675	23	25	4,474	35.36	21
3.67	4.02	0.85	1.42	1.23	1.66	2.00	2.74	0.09	0.10			
							57		2	128	1.22	22
							0.23		0.008			
3,839	16,803	1,298	926	17,277	1,400	40,488	131,357	1,072	5,063	1,954,278	8,409.71	23
781.30	505.44	183.95	329.77	1,647.24	184.84	542.08	534.88	4.36	20.61			
24	83	5	3	221	34	298	1,072					24
4.59	2.49	0.70	1.06	21.26	4.48	3.98	4.36					
3	8			1	5	9	49					25
0.61	0.24			0.03	0.66	0.12	0.19					
148	572	57	18	1,062	23	1,418	5,063					26
30.19	17.19	8.07	6.41	100.23	3.03	18.38	20.61					
62,225	243,008	19,911	17,160	319,540	26,746	512,827	1,954,278					27
275.56	932.63	85.44	57.62	1,512.82	101.64	2,331.88	8,409.71					28

## DEATHS.

TABLE 3.—Casualties in the Navy and Marine Corps during the calendar year 1917.

Cause.	Number.	Navy.		Marine.	
		Officers.	Men.	Officers.	Men.
DISEASE.					
Abscess of brain.....	3		3		
Abscess of kidney.....	1		1		
Abscess of liver.....	1		1		
Abscess of lung.....	3		1		2
Aerogenes capsulatus infection.....	1		1		
Aneurysm.....	1		1		
Angina pectoris.....	2	2			
Appendicitis, acute.....	8		7		1
Arterial sclerosis, general.....	1	1			
Arthritis, acute.....	3		3		
Atrophy of liver, acute yellow.....	1		1		
Carcinoma.....	8	2	6		
Cerebro-spinal fever.....	112	2	106		4
Cholangitis, acute.....	1		1		
Cholecystitis, acute.....	2		2		
Cholecystitis, chronic.....	1		1		
Cystitis, chronic (nonvenereal).....	1				1
Dementia, paralytica.....	5	1	4		
Dementia, præcox.....	2	1	1		
Diabetes mellitus.....	4	1	3		
Dilatation, acute cardiac.....	8		6		2
Dilatation of stomach, acute.....	1		1		
Diphtheria.....	3		3		
Dysentery, entamebic.....	1				1
Edema of lung.....	2		2		
Embolism.....	2	1			1
Endocarditis, acute.....	5		5		
Enteritis, acute.....	2	1	1		
Enteritis, chronic.....	1		1		
Epilepsy.....	1		1		
Erysipelas.....	1		1		
Foreign body in bronchus.....	1		1		
Foreign body in trachea.....	1		1		
Gonococcus infection, unqualified.....	1		1		
Heart block.....	1		1		
Hemorrhage into cerebrum.....	2		2		
Hemorrhage, subdural.....	1		1		
Hydronephrosis.....	1		1		
Infarct of lung.....	1				1
Influenza.....	1		1		
Leukemia.....	1		1		
Malaria.....	3		2		1
Mastoiditis, acute.....	1		1		
Measles.....	5		5		
Meningitis, cerebral.....	12	3	8		1
Meningitis, cerebro-spinal.....	39	2	34		3
Meningitis, spinal.....	1		1		
Myelitis, transverse.....	1				1
Myocarditis, acute.....	5		4		1
Myocarditis, chronic.....	5	3	2		
Nephritis, acute.....	5		4		1
Nephritis, chronic interstitial.....	2		2		
Nephritis, chronic parenchymatous.....	6	1	5		
Obstruction, acute intestinal.....	5		5		
Paraplegia, ataxic.....	1		1		
Pemphigus.....	1		1		
Peritonitis, acute general.....	4		4		
Pleurisy, chronic fibrinous.....	1				1
Pleurisy, serofibrinous.....	4		4		
Pleurisy, suppurative.....	52		52		
Pneumonia, broncho.....	67		63		4
Pneumonia, interstitial.....	1		1		
Pneumonia, lobar.....	132		127		5
Poliomyelitis, acute bulbar.....	1		1		
Psychosis, manic depressive.....	1		1		
Purpura, hemorrhagic.....	1		1		
Rheumatic fever, acute.....	1		1		
Sarcoma.....	5		4		1
Scarlet fever.....	5		4		1
Sclerosus, disseminated.....	1		1		
Septicæmia.....	14		9		5
Smallpox.....	1		1		
Stomatitis.....	1		1		
Syphilis.....	2				2

## DEATHS—Continued.

TABLE 3.—Casualties in the Navy and Marine Corps during the calendar year 1917—Continued.

Cause.	Number.	Navy.		Marine.	
		Officers.	Men.	Officers.	Men.
DISEASE—Continued.					
Thrombosis.....	1		1		
Trichinosis.....	1		1		
Tuberculosis, acute broncho-pneumonic.....	5		4		1
Tuberculosis, acute general.....	1		1		
Tuberculosis, acute pneumonic.....	3		2		1
Tuberculosis, acute and pulmonary miliary.....	2		2		
Tuberculosis, chronic pulmonary.....	47	2	38		7
Tuberculosis, unqualified.....	1		2		
Tuberculosis meningitis.....	2		2		
Typhoid fever.....	1		1		
Ulcer of duodenum.....	2		1		1
Ulcer of stomach.....	4	1	2		1
Valvular disease, chronic cardiac.....	7		6		1
Total for diseases.....	662	24	586		52
INJURIES.					
Avulsion, arm, "F".....	3		3		
Avulsion, arm, "H".....	1		1		
Avulsion, arm, "I".....	1		1		
Burns, multiple, extreme, "FS".....	8	1	7		
Burns, multiple, extreme, "L".....	4		3		
Crush, chest, "I".....	3		3		
Crush, multiple, extreme, "FS".....	1		1		
Crush, skull, "I".....	2		2		
Dislocation, vertebra, "J".....	1		1		
Drowning, "A".....	6		6		
Drowning, "D".....	116	5	105		6
Drowning, "DR".....	4	1	3		
Drowning, "DS".....	19		19		
Drowning, "K".....	48	1	47		
Exhaustion from heat, "L".....	1		1		
Exhaustion from overexposure, "K".....	25	1	24		
Exhaustion from overexposure, "L".....	5		5		
Fracture, compound, pelvis, "G".....	1		1		
Fracture, compound, ribs, "G".....	1		1		
Fracture, compound, skull, "B".....	1		1		
Fracture, compound, skull, "F".....	2	1	1		
Fracture, compound, skull, "G".....	5	1	4		
Fracture, compound, skull, "GR".....	1		1		
Fracture, compound, skull, "HR".....	2		2		
Fracture, compound, skull, "I".....	1		1		
Fracture, compound, skull, "L".....	4		3	1	
Fracture, compound, skull, "L".....	4	1	3		
Fracture, simple, skull, "B".....	1		1		
Fracture, simple, skull, "G".....	9		9		
Fracture, simple, skull, "I".....	1				1
Fracture, simple, skull, "L".....	7		5		2
Fracture, simple, vertebra, "L".....	2		2		
Frostbite, multiple, extreme, "L".....	1		1		
Intracranial injury, "G".....	2		1		1
Intracranial injury, "I".....	1		1		
Intracranial injury, "J".....	1		1		
Intracranial injury, "L".....	1				1
Intraspinal injury, "G".....	1		1		
Intraspinal injury, "J".....	1		1		
Multiple injuries, extreme, "CR".....	1		1		
Multiple injuries, extreme, "G".....	2	1	1		
Multiple injuries, extreme, "GR".....	2		2		
Multiple injuries, extreme, "I".....	1				1
Multiple injuries, extreme, "K".....	22	1	21		
Multiple injuries, extreme, "L".....	1		1		
Rupture, lung, traumatic, "GR".....	1		1		
Smoke inhalation, "C".....	1		1		
Strangulation, "A".....	5		4		1
Strangulation, "I".....	1		1		
Wound, gunshot, abdomen, "A".....	2	1	1		
Wound, gunshot, abdomen, "B".....	2		1		1
Wound, gunshot, abdomen, "E".....	3	1	2		



DISTRIBUTION AMONG OCCUPATIONAL GROUPS.

the personnel for the calendar year 1917, by classified admissions, deaths and suicide rates, sick days, and the computed damage.

Seamen branch.				Totals for all occupations.					Class No.
Pris- oners.	Ap- prentices.	Ord- nance.	All others.	Numb- er.	Deaths.	Inva- lided from servi- ce.	Sick days.	Dam- age.	
2,808	10,489	7,574	74,692	245,580					
	5		16	51	2	7	1,623	7.85	1
	0.47		0.21	0.20	0.008	0.02			
1	161	11	266	967	38	465	23,924	315.81	2
0.35	15.34	1.45	3.56	3.53	0.15	1.89			
265	2,149	255	7,319	21,965	34	152	197,930	633.10	3
94.37	204.98	33.66	97.98	89.44	0.13	0.61			
1	14		26	91		53	2,998	33.89	4
0.35	1.33		0.34	0.37		0.21			
28	380	26	623	1,976	1	336	46,783	294.94	5
9.97	34.32	3.43	8.40	8.04	0.004	1.36			
14	152	28	522	1,775		281	30,239	222.98	6
4.98	14.49	3.63	6.98	7.22		1.14			
26	600	41	1,003	3,464	16	224	55,740	270.38	7
9.25	57.20	5.41	13.50	14.10	0.06	0.91			
208	7,846	310	13,742	44,706	210	524	722,252	2,344.55	8
74.07	748.02	40.92	193.68	182.04	0.85	2.13			
102	1,673	309	6,570	21,786	3	169	211,254	717.09	9
36.68	159.50	40.79	97.96	88.71	0.01	0.68			
9	87	16	284	985		1	23,355	61.34	10
3.20	6.38	2.11	3.51	4.01		0.001			
17	199	9	247	976	8	643	38,782	431.48	11
6.05	18.97	1.18	3.30	3.97	0.01	2.62			
20	264	14	710	2,110	3	797	47,219	528.48	12
7.12	25.16	1.84	9.50	8.59	0.01	3.24			
20	171	16	401	1,518	62	520	45,823	415.27	13
7.12	16.30	2.11	5.36	6.26	0.25	2.11			
43	1,745	64	2,782	9,390	205	166	159,132	649.55	14
15.31	166.36	8.45	37.24	38.21	1.07	0.67			
28	137	12	422	1,495	1	29	21,306	77.84	15
9.97	13.06	1.58	5.64	6.08	0.004	0.11			
9	266	20	320	1,218		203	40,991	212.91	16
3.20	25.35	2.63	4.28	5.04		0.82			
29	683	23	861	3,773	4	252	71,861	323.18	17
10.32	65.11	3.82	11.52	15.36	0.01	1.02			
31	218	17	402	1,610	2	2	20,218	57.22	18
11.03	22.63	2.24	5.38	6.67	0.008	0.008			
1	12	5	56	219	13	8	5,220	24.06	19
0.35	1.14	0.66	0.74	0.89	0.05	0.03			
70	522	203	3,775	10,480	387	204	160,934	338.65	20
24.92	49.78	26.80	50.54	42.67	1.57	0.83			
4	13	15	150	675	21	25	4,474	35.36	21
1.42	1.21	1.98	2.00	2.74	0.09	0.10			
				57		2	128	1.22	22
				0.23		0.008			
926	17,277	1,400	40,488	131,357	1,072	5,061	1,954,278	8,409.71	23
29.77	1,647.24	184.84	542.06	514.88	4.36	20.61			
3	223	34	298	1,072					24
1.06	21.26	4.48	3.98	4.36					
	1	5	9	49					25
	0.03	0.66	0.12	0.19					
18	1,052	21	1,418	5,061					26
6.41	100.23	3.03	19.38	20.61					
7,160	319,540	26,746	512,827	951,278					27
57.62	1,512.82	101.64	2,331.88	8,409.71					28

## DEATHS.

TABLE 3.—Casualties in the Navy and Marine Corps during the calendar year 1917.

Cause.	Number.	Navy.		Marina.	
		Officers.	Men.	Officers.	Men.
DISEASE.					
Abscess of brain.....	3		3		
Abscess of kidney.....	1		1		
Abscess of liver.....	1		1		
Abscess of lung.....	3		1		2
Aerogenes capsulatus infection.....	1		1		
Aneurysm.....	1		1		
Angina pectoris.....	2	2			
Appendicitis, acute.....	8		7		1
Arterial sclerosis, general.....	1	1			
Arthritis, acute.....	3		3		
Atrophy of liver, acute yellow.....	1		1		
Carcinoma.....	8	2	6		
Cerebro-spinal fever.....	112	2	106		4
Cholangitis, acute.....	1		1		
Cholecystitis, acute.....	2		2		
Cholecystitis, chronic.....	1		1		
Cystitis, chronic (nonvenereal).....	1				1
Dementia, paralytica.....	5	1	4		
Dementia, præcox.....	2	1	1		
Diabetes mellitus.....	4	1	3		
Dilatation, acute cardiac.....	8		6		2
Dilatation of stomach, acute.....	1		1		
Diphtheria.....	3		3		
Dysentery, entamebic.....	1				1
Edema of lung.....	2		2		
Embolism.....	2	1			1
Endocarditis, acute.....	5		5		
Enteritis, acute.....	2	1	1		
Enteritis, chronic.....	1		1		
Epilepsy.....	1		1		
Erysipelas.....	1		1		
Foreign body in bronchus.....	1		1		
Foreign body in trachea.....	1		1		
Gonococcus infection, unqualified.....	1		1		
Heart block.....	1		1		
Hemorrhage into cerebrum.....	2		2		
Hemorrhage, subdural.....	1		1		
Hydronephrosis.....	1		1		
Infarct of lung.....	1				1
Influenza.....	1		1		
Leukemia.....	1		1		
Malaria.....	3		2		1
Mastoiditis, acute.....	1		1		
Measles.....	5		5		
Meningitis, cerebral.....	12	3	8		1
Meningitis, cerebro-spinal.....	39	2	34		3
Meningitis, spinal.....	1		1		
Myelitis, transverse.....	1				1
Myocarditis, acute.....	5		4		1
Myocarditis, chronic.....	5	3	2		
Nephritis, acute.....	5		4		1
Nephritis, chronic interstitial.....	2		2		
Nephritis, chronic parenchymatous.....	6	1	5		
Obstruction, acute intestinal.....	5		5		
Paraplegia, ataxic.....	1		1		
Pemphigus.....	1		1		
Peritonitis, acute general.....	4		4		
Pleurisy, chronic fibrinous.....	1				1
Pleurisy, serofibrinous.....	4		4		
Pleurisy, suppurative.....	52		52		
Pneumonia, broncho.....	67		63		4
Pneumonia, interstitial.....	1		1		
Pneumonia, lobar.....	132		127		5
Poliomyelitis, acute bulbar.....	1		1		
Psychosis, manic depressive.....	1		1		
Purpura, hemorrhagic.....	1		1		
Rheumatic fever, acute.....	1		1		
Sarcoma.....	5		4		1
Scarlet fever.....	5		4		1
Sclerosis, disseminated.....	1		1		
Septicemia.....	14		9		5
Smallpox.....	1		1		
Stomatitis.....	1		1		
Syphilis.....	2				2



## INVALIDED FROM THE SERVICE—Continued.

TABLE 4.—Discharged from the service by reason of physical disability during the calendar year 1917—Continued.

Disability.	Number.	Navy.		Marine.	
		Officers.	Men.	Officers.	Men.
Myringitis, acute.....	1				1
Nausea marina.....	9		9		
Nephritis, acute.....	1		1		
Nephritis, chronic interstitial.....	14		14		
Nephritis, chronic parenchymatous.....	42		36		6
Nephrolithiasis.....	6		6		
Nephropotosis.....	1		1		
Nervous dyspepsia.....	1				1
Neuralgia.....	4		4		
Neurasthenia.....	68	6	54	1	7
Neuritis.....	22	1	20		1
Neuritis, multiple.....	2		2		
Neuritis, otic.....	4		4		
Neuroretinitis.....	3		2		1
Neurosis, intestinal.....	5		5		
Neurosis, occupational.....	3		3		
Neurosis of bladder.....	56		46		10
Neurosis, traumatic.....	5		5		
Nevus.....	1		1		
No disease.....	84		84		
Nostalgia.....	1		1		
Nystagmus.....	2		1		1
Obesity.....	2		2		
Obstruction, acute intestinal.....	1		1		
Obstruction, chronic intestinal.....	1		1		
Opacity of vitreous humor.....	3		3		
Orchitis, acute (nonvenereal).....	1		1		
Orchitis, chronic (nonvenereal).....	3		2		1
Osmification of auricle.....	1		1		
Osteitis deformans.....	1		1		
Osteoarthritis, hypertrophic.....	3	1	2		
Osteoma.....	4		4		
Osteomyelitis, acute.....	1		1		
Osteomyelitis, chronic.....	9		7		2
Otitis interna, chronic.....	7		7		
Otitis media, acute.....	8		8		
Otitis media, chronic.....	270	3	237		30
Ozema.....	3		2		1
Pachymeningitis, cerebral.....	1		1		
Palpitation, cardiac.....	2		2		
Paralysis, agitante.....	3		3		
Paralysis of nerve.....	11		11		
Paralysis of ocular muscle.....	4		3		1
Paralysis, muscle, ischemic.....	1		1		
Parosyoclonus multiplex.....	1		1		
Paranoia.....	2		1		1
Parosic state.....	3		2		1
Pericarditis.....	1		1		
Pericistitis, chronic.....	11		9		2
Pes cavus.....	2		2		
Pes planus.....	563		466		85
Phimosis.....	1		1		
Phibitis.....	2		2		
Pleurisy, acute fibrinous.....	2		4		
Pleurisy, chronic fibrinous.....	4		2		
Pleurisy, serofibrinous.....	2		1		1
Pleurisy, suppurative.....	20		18		2
Pleuritic adhesions.....	3		2		1
Pneumonia, lobar.....	2		2		
Poliomyelitis, acute anterior.....	1		1		
Poliomyelitis, chronic anterior.....	2		2		
Proctitis.....	2		2		
Prolapse of rectum.....	6		6		
Parosis.....	2		2		
Psychasthenia.....	32	2	24		6
Psychosis due to organic brain disease.....	2		1	1	
Psychosis, epileptic.....	4		4		
Psychosis (exhaustive, infective, and toxic).....	5		5		
Psychosis, hysterical.....	5		5		
Psychosis, intoxication.....	4		1		3
Psychosis, manic depressive.....	15	1	13		1
Psychosis, traumatic.....	3		3		
Pyelitis.....	1		1		
Pyelonephritis.....	1		1		
Pyrrhea, alveolar.....	10		9		1

## DEATHS—Continued.

TABLE 3.—*Casualties in the Navy and Marine Corps during the calendar year 1917*—Continued.

Cause.	Number.	Navy.		Marine.	
		Officers.	Men.	Officers.	Men.
INJURIES—Continued.					
Wound, gunshot, abdominal artery or vein (main "K")	1				
Wound, gunshot, back, "A"	1		1		
Wound, gunshot, back, "B"	1				
Wound, gunshot, brain, "A"	19	5	10		
Wound, gunshot, brain, "B"	1		1		
Wound, gunshot, brain, "K"	1			1	
Wound, gunshot, heart, "A"	3	1	1		
Wound, gunshot, heart, "E"	2		1	1	
Wound, gunshot, leg, "E"	1				
Wound, gunshot, lung, "A"	1		1		
Wound, gunshot, lung, "B"	1				
Wound, gunshot, thigh, "I"	1		1		
Wound, gunshot, thorax, "A"	2		1		
Wound, gunshot, thorax, "B"	2				
Wound, gunshot, thorax, "E"	2		1		
Wound, gunshot, thorax, "L"	1				
Wound, incised, throat, "A"	1		1		
Wound, lacerated, abdominal, "G"	1		1		
Wound, lacerated, abdominal, "L"	2		2		
Wound, lacerated, multiple, extreme, "L"	1		1		
Total for injuries	387	23	333	3	
POISONS.					
Botulism, "L"	1		1		
Poison, anesthesia (nit. ox. oxygen ether) acute, "L"	1		1		
Poison, acid hydrocyanic, acute, "A"	1		1		
Poison, alcohol, chronic, "L"	1				
Poison, arsenic (salvarsan), acute, "L"	1		1		
Poison, carbon monoxid, acute, "L"	1		1		
Poison, cocaine, acute, "A"	1		1		
Poison, fish, acute, "L"	1	1			
Poison, heroin, acute, "L"	1		1		
Poison, illuminating gas, acute, "A"	2		2		
Poison, illuminating gas, acute, "L"	3		3		
Poison, mercuric chloride, acute, "A"	2		2		
Poison, mercuric chloride, acute, "L"	1		1		
Poison, opium, acute, "I"	1		1		
Poison, phenol, acute, "A"	1		1		
Poison, phenol, acute, "L"	1		1		
Poison, strychnine, acute, "A"	1		1		
Poison, serum (antidiphtheritic), acute, "L"	1		1		
Poison, unqualified, acute, "A"	1				1
Total for poisons	23	1	20		1

## INVALIDED FROM THE SERVICE.

TABLE 4.—*Discharged from the service by reason of physical disability during the calendar year 1917.*

Disability.	Number.	Navy.		Marine.	
		Officers.	Men.	Officers.	Men.
Abscess about rectum	2		2		
Abscess of brain	1		1		
Adhesions about gall bladder	4	1	2		1
Adhesions about stomach	1		1		
Adhesions of peritoneum	35		29		6
Albuminuria	1		1		
Amaurosis	4		3		1
Amblyopia	18		17		1
Amputation stump	17		16		1
Amyotonia congenita	1		1		

## INVALIDED FROM THE SERVICE—Continued.

TABLE 4.—Discharged from the service by reason of physical disability during the calendar year 1917—Continued.

Disability.	Number.	Navy.		Marine.	
		Officers.	Men.	Officers.	Men.
Myringitis, acute.....	1				1
Nausea marina.....	9		9		
Nephritis, acute.....	1		1		
Nephritis, chronic interstitial.....	14		14		
Nephritis, chronic parenchymatous.....	42		35		6
Nephrolithiasis.....	6		6		
Nephropotosis.....	1		1		
Nervous dyspepsia.....	1				1
Neuralgia.....	4		4		
Neurasthenia.....	68	6	54	1	7
Neuritis.....	22	1	20		1
Neuritis, multiple.....	2		2		
Neuritis, optic.....	4		4		
Neuroretinitis.....	3		2		1
Neurosis, intestinal.....	5		5		
Neurosis, occupational.....	3		3		
Neurosis of bladder.....	56		46		10
Neurosis, traumatic.....	5		5		
Nevus.....	1		1		
No disease.....	84		84		
Nostalgia.....	1		1		
Nystagmus.....	2		1		1
Obesity.....	2		2		
Obstruction, acute intestinal.....	1		1		
Obstruction, chronic intestinal.....	1		1		
Opacity of vitreous humor.....	3		3		
Ochritis, acute (nonvenereal).....	1		1		
Orchitis, chronic (nonvenereal).....	3		2		1
Ossification of auricle.....	1		1		
Osteitis deformans.....	1		1		
Osteoarthropathy, hypertrophic.....	3	1	2		
Osteoma.....	4		4		
Osteomyelitis, acute.....	1		1		
Osteomyelitis, chronic.....	9		7		2
Otitis interna, chronic.....	7		7		
Otitis media, acute.....	8		8		
Otitis media, chronic.....	270	3	257		30
Ozena.....	3		2		1
Pachymeningitis, cerebral.....	1		1		
Palpitation, cardiac.....	2		2		
Paralysis, agitans.....	3		3		
Paralysis of nerve.....	11		11		
Paralysis of ocular muscle.....	4		3		1
Paralysis, muscle, ischemic.....	1		1		
Paramyoclonus multiplex.....	1		1		
Paranoia.....	2		1		1
Paranoiac state.....	3		2		1
Pericarditis.....	1		1		
Peristitis, chronic.....	11		9		2
Pes cavus.....	2		2		
Pes planus.....	553		468		85
Phimosis.....	1		1		
Phlebitis.....	2		2		
Pleurisy, acute fibrinous.....	4		4		
Pleurisy, chronic fibrinous.....	2		2		
Pleurisy, serofibrinous.....	2		1		1
Pleurisy, suppurative.....	20		18		2
Pleuritic adhesions.....	3		2		1
Pneumonia, lobar.....	2		2		
Polioomyelitis, acute anterior.....	1		1		
Polioomyelitis, chronic anterior.....	2		2		
Proctitis.....	2		2		
Protrusion of rectum.....	6		6		
Psoriasis.....	2		2		
Psychasthenia.....	32	2	24		6
Psychosis due to organic brain disease.....	2		1	1	
Psychosis, epileptic.....	4		4		
Psychosis (exhaustive, ineffective, and toxic).....	5		5		
Psychosis, hysterical.....	5		5		
Psychosis, intoxication.....	4		1		3
Psychosis, manic depressive.....	15	1	13		1
Psychosis, traumatic.....	3		3		
Pyelitis.....	1		1		
Pyelonephritis.....	1		1		
Pyorrhea, alveolar.....	10		9		1

## INVALIDED FROM THE SERVICE—Continued.

TABLE 4.—Discharged from the service by reason of physical disability during the calendar year 1917—Continued.

Disability.	Number.	Navy.		Marine.	
		Officers.	Men.	Officers.	Men.
Epilepsy.....	208	1	227		3
Epilepsy, Jacksonian.....	6		6		1
Erythraemic goiter.....	13		12		1
Fibroma.....	1		1		1
Fistula in ano.....	2		1		1
Fistula of trachea.....	1		1		1
Fistula of urethra.....	1		1		1
Gastritis, chronic catarrhal.....	10	1	9		1
Gastrodysenteritis.....	1		1		1
Gastrostomitis.....	4		4		1
Genu valgum.....	1		1		1
Genu varum.....	1		1		1
Gingivitis.....	1		1		1
Glaucoma, chronic.....	1		1		1
Goiter.....	40	1	39		1
Gonorrheic infection of joints.....	40		35		5
Gonorrheic infection of larynx-nose.....	2		2		1
Gonorrheic infection of urethra.....	17		13		4
Gonorrheic infection, unqualified.....	10		7		3
Hallux valgus.....	5		5		1
Hammer toe.....	10		9		1
Hematuria, renal.....	2		2		1
Hemiplegia, old.....	2		1		1
Hemophilia.....	2		2		1
Hemorrhage into cerebrum.....	1		1		1
Hemorrhage into retina.....	7		5		2
Hemorrhoids.....	2	2	2		1
Hernia, epigastric.....	2		2		1
Hernia, femoral.....	2		2		1
Hernia, inguinal.....	183	4	171		8
Hernia of brain.....	1		1		1
Hernia of muscle, fascia, tendon, or sheath.....	2		2		1
Hernia, umbilical.....	2		2		1
Hernia, ventral.....	14		13		1
Hydrocele of spermatic cord.....	2		1		1
Hydrocele of tunica vaginalis.....	2		2		1
Hydrothorax.....	1		1		1
Hypæsthesia of retina.....	1		1		1
Hypertrophia.....	14		12		2
Hypertrophy of bone.....	1		1		1
Hypertrophy of heart.....	6	1	5		1
Hypochlorhydria.....	1		1		1
Hypochondriasis.....	9		9		1
Hysteria.....	36		34		2
Inability.....	50		49		1
Incontinence of urine.....	58		51		7
Interdigital nail.....	1		1		1
Intracapsular of ocular muscle.....	14		11		3
Iridocyclitis.....	2		1		1
Iritis.....	3		3		1
Keratitis.....	3		1		2
Laryngitis, acute.....	1		1		1
Laryngitis, chronic.....	3		3		1
Lithoma.....	1		1		1
Locomotor ataxia.....	2		1		1
Loose body in joint.....	2		6		1
Loss of substance of bone or cartilage.....	2		1		1
Lupus erythematosus.....	1		1		1
Lymphadenitis, acute.....	1		1		1
Malformations, congenital.....	11		11		1
Macular atrophy.....	2		2		1
Macularitis, chronic.....	5		5		1
Macularization.....	3		3		1
Madness, involutional.....	2		2		1
Meckel's disease.....	2		1		1
Meningitis, cerebro-spinal.....	1		1		1
Meningitis, cerebral.....	5		3		2
Meningitis, spinal.....	2	1	2		1
Mitralgia.....	2		2		1
Mitralic dissection.....	2		2		1
Mitralitis, chronic.....	20	2	18		1
Mitralia.....	20	5	15		1
Mitralis, chronic.....	3		3		1

## INVALIDED FROM THE SERVICE—Continued.

Invalided from the service by reason of physical disability during the calendar year 1917—Continued.

Disability.	Number.	Navy.		Marine.	
		Officers.	Men.	Officers.	Men.
	1				1
	9		9		
	1		1		
stiff	14		14		
chymatous	42		36		6
	6		6		
	1		1		
	1				1
	4		4		
	68	6	54	1	7
	22	1	20		1
	2		2		
	4		4		
	3		2		1
	5		5		
	3		3		
	56		46		10
	5		5		
	1		1		
	84		84		
	1		1		
	2		1		1
	2		2		
stiff	1		1		
testinal	1		1		
nor	3		3		
areal)	1		1		
areal)	3		2		1
	1		1		
	3		1		
artrophic	1		2		
	4	1	4		
	1		1		
	9		7		2
	7		7		
	8		8		
	270	3	237		33
	3		2		1
ral	1		1		
	2		2		
	3		3		
	11		11		
le	4		3		1
mic	1		1		
ex	1		1		
	2		1		1
	3		2		1
	1		1		
	11		9		2
	2		2		
	563		468		95
	1		1		
	2		2		
	4		4		
ous	2		2		
	2		1		1
	20		18		2
	3		2		1
	2		2		
erior	1		1		
interior	2		2		
	2		2		
	6		6		
	2		2		
	32	2	24		8
c brain disease	2		1	1	
	4		4		
(ineffective, and toxic)	5		5		
	5		5		
	4		1		3
usive	15	1	13		1
	3		3		
	1		1		
	1		1		
	10		9		1

## INVALIDED FROM THE SERVICE—Continued.

TABLE 4.—Discharged from the service by reason of physical disability during the calendar year 1917—Continued.

Disability.	Number.	Navy.		Marina.	
		Officers.	Men.	Officers.	Men.
Raynaud's disease.....	2		2		
Refractis.....	20		19		1
Rheumatic fever, acute.....	10		10		
Rheumatic fever, subacute.....	9		7		2
Rheumatism, chronic articular.....	66	2	56		11
Rheumatism, muscular.....	13		11		2
Rhinitis, atrophic.....	6		5		1
Rhinitis, hypertrophic.....	2		1		1
Rickets.....	1		1		
Sarcoma.....	2		2		
Sclerosis, lateral.....	2		2		
Seborrhea.....	1		1		
Seizure.....	6		6		
Septicemia.....	2		2		
Sinus.....	1		1		
Sinusitis, ethmoidal.....	2		2		
Sinusitis, frontal.....	3		3		
Sinusitis, maxillary.....	3		3		
Somnambulism.....	11		11		
Splanchnoptosis.....	1		1		
Stammering.....	25		23		2
Stenosis of nasal duct.....	1		1		
Stomatitis.....	2		2		
Stricture of esophagus.....	2		2		
Stricture of urethra.....	3		2		1
Strongyloides, intestinal.....	1		1		
Stuttering.....	4		2		2
Synechia.....	1		1		
Syphilis.....	99	2	82		15
Tachycardia.....	25		22		3
Talipes.....	8		8		
Tenosynovitis.....	2		2		
Tonsillitis, chronic.....	1		1		
Trachoma.....	13		13		
Tuberculosis, abdominal.....	1		1		
Tuberculosis, acute bronchopneumonic.....	1				1
Tuberculosis, acute pneumonic.....	4		4		
Tuberculosis, acute and pulmonary miliary.....	2		2		
Tuberculosis, chronic pulmonary.....	403	5	338	3	7
Tuberculosis of joint.....	7		7		
Tuberculosis of larynx.....	4		3		1
Tuberculosis of pleura.....	2		1		1
Tuberculosis, unqualified.....	9	1	8		
Ulcer of duodenum.....	1		1		
Ulcer of eye and adnexa.....	3		3		
Ulcer of skin.....	1		1		
Ulcer of stomach.....	18		17		1
Union of fracture faulty.....	24	2	22		
Valvular disease, chronic cardiac.....	20		267		23
Variocoele.....	14		13		1
Variety.....	33	1	31		2
Vertigo.....	2		2		
Total for disease.....	4,832	62	4,234	6	530
INJURIES.					
Avulsion, fingers, "H".....	1		1		
Avulsion, leg, "I".....	1		1		
Avulsion, leg, "L".....	1		1		
Compression, chest, "L".....	2		2		
Contusion, back, "I".....	1		1		
Contusion, eye, "L".....	2		1		1
Contusion, fingers, "H".....	1		1		
Contusion, head, "I".....	1		1		
Contusion, toes, "I".....	1		1		
Crush, hand, "H".....	2		2		
Crush, hand, "I".....	1		1		
Crush, leg, "I".....	1		1		
Dislocation, ankle, "G".....	1		1		
Dislocation, ankle, "L".....	1		1		
Dislocation, cartilage, intra-art. joint, "G".....	2		1		1
Dislocation, cartilage, intra-art. joint, "I".....	1		1		
Dislocation, cartilage, intra-art. joint, "L".....	4		4		

arged from the service by reason of physical disability during the calendar year 1917—Continued.

Sanability.	Number.	Navy.		Marine.	
		Officers.	Men.	Officers.	Men.
CS—Continued.					
"	1		1		
"	1				1
"	1		1		
"	2		2		
"	1		1		
"	2		2		
"	2		2		
"	1		1		
"G"	4		4		
"L"	2		2		
"L"	4		4		
"G"	2		2		
"L"	3		2		1
"	1		1		
"	1		1		
"eye, "E"	1		1		
"eye, "L"	2		2		
"icle, "L"	1		1		
"icle, "J"	1		1		
"our, "G"	1		1		
"er, "I"	1		1		
"illa, "L"	1		1		
"multiple, unqualified, "G"	1		1		
"ilius and ulna, "F"	1		1		
"ilius and ulna, "G"	1		1		
"ilius and ulna, "L"	1		1		
"ull "G"	2		2		
"ull "I."	1		1		
"ia and fibula, "G"	1		1		
"ia and fibula, "L"	2	1	1		
"ua, "G"	1		1		
"G"	2		2		
"L"	3		1		2
"G"	1		1		
"G"	1				1
"G"	1		1		
"H"	1				1
"G"	1		1		
"G"	1		1		
"rsal, "Y"	1		1		
"rsal, "G"	2		1		1
"rsal, "H"	1		1		
"rsal, "I"	1		1		
"rsal, "L"	2		2		
"L"	3		3		
"L"	1		1		
"L"	1		1		
"and ulna, "G"	2		2		
"and ulna, "H"	2		1		
"and ulna, "L"	1		1		
"G"	1		1		
"L"	1		1		
"H"	1		1		
"L"	1		1		
"id fibula, "G"	1		1		1
"id fibula, "I"	1				1
"L"	1		1		
"ised, "G"	5		4		1
"ised, "J"	1		1		
"L"	1		1		
"a, "G"	1		1		
"a, "I"	2		2		
"F"	1		1		
"G"	1		1		
"J"	1				1
"L"	1		1		
"traumatic, "J"	1		1		
"traumatic, "L"	1		1		
"	1		1		
"F"	6		6		
"omatic, "L"	1		1		

## INVALIDED FROM THE SERVICE—Continued.

TABLE 4.—Discharged from the service by reason of physical disability during the calendar year 1917—Continued.

Disability.	Number.	Navy.		Marine.	
		Officers.	Men.	Officers.	Men.
INJURIES—Continued.					
Sprain of joint, ankle, "L".....	2		1		
Sprain of joint, hip, "G".....	1		1		
Sprain of joint, knee, "J".....	1				
Sprain of joint, knee, "L".....	2		2		
Sprain of joint, unqualified, "J".....	1				
Sprain of joint, vertebra, "G".....	2		1		
Sprain of joint, vertebra, "J".....	1				
Sprain of joint, vertebra, "L".....	8	1	7		
Strain of muscle, lumbar, "L".....	2		2		
Synovitis, traumatic, elbow joint, "J".....	1		1		
Synovitis, traumatic, knee joint, "G".....	8		3		
Synovitis, traumatic, knee joint, "H".....	1		1		
Synovitis, traumatic, knee joint, "L".....	2		1		
Wound, gunshot, abdomen, "E".....	2		1		
Wound, gunshot, abdomen, "L".....	1				
Wound, gunshot, arm, "E".....	1		1		
Wound, gunshot, arm, "K".....	4				
Wound, gunshot, back, "E".....	1		1		
Wound, gunshot, brain, "E".....	1		1		
Wound, gunshot, brain, "K".....	1				
Wound, gunshot, fingers, "E".....	1		1		
Wound, gunshot, foot, "E".....	1				
Wound, gunshot, hand, "E".....	2		2		
Wound, gunshot, hand, "L".....	1		1		
Wound, gunshot, leg, "E".....	4		2		
Wound, gunshot, leg, "K".....	1				
Wound, gunshot, neck, "K".....	1				
Wound, gunshot, thigh, "L".....	1		1		
Wound, gunshot, thorax, "L".....	1				
Wound, gunshot, toes, "E".....	1				
Wound, gunshot, unqualified, "E".....	1		1		
Wound, incised, ankle, "L".....	1		1		
Wound, incised, eye, "L".....	2		2		
Wound, incised, foot, "L".....	1		1		
Wound, incised, hand, "L".....	1		1		
Wound, incised, leg, "L".....	1		1		
Wound, incised, unqualified, "F".....	1		1		
Wound, lacerated, arm, "I".....	1		1		
Wound, lacerated, arm, "L".....	1		1		
Wound, lacerated, eye, "F".....	1		1		
Wound, lacerated, eye, "L".....	2		2		
Wound, lacerated, fingers, "I".....	1		1		
Wound, lacerated, foot, "H".....	1		1		
Wound, lacerated, hand, "I".....	1		1		
Wound, lacerated, knee, "H".....	1				
Wound, lacerated, leg, "L".....	1		1		
Wound, punctured, eye, "H".....	1		1		
Wound, punctured, unqualified, "L".....	1		1		
Total for wounds, etc.....	204	2	167		
POISONS.					
Poison, alcohol, chronic, "L".....	3		3		
Poison, cocaine, acute, "L".....	1				
Poison, cocaine, chronic, "L".....	3		3		
Poison, gasoline, inhaled, acute, "L".....	1		1		
Poison, heroin, acute, "L".....	1		1		
Poison, heroin, chronic, "L".....	7		7		
Poison, lead, chronic, "L".....	1		1		
Poison, morphine, chronic, "L".....	6		5		
Poison, opium, chronic, "L".....	2		2		
Total for poisons.....	25		23		



**-Report of surgical operations for the calendar year 1917.**

[illegible]

**OPERATIONS—Continued.**

TABLE 5.—Report of surgical operations for the calendar year 1917—Continued.

Operations.	Result.					Anesthetic employed.					
	Cured.	Died.	Improved.	Unimproved.	Transferred.	Chloroform.	Ether.	Ether with other.	Gas.	Other general.	Local or none.
Cellulitis:											
Arm, incised	8					2	2				
Foot, incised	3		1				1				
Hand, incised	6		1		2		4				
Leg, incised	10		1			1	3				
Orbit, excision of eye	7		3	1			1				
Unqualified, incised	23			1			10				
Chalazion, excision	14	2		2			1	1			
Cholecystitis, cholecystostomy (died: 2 septicemia)							17	1			
Cholelithiasis:											
Cholecystostomy	1		1		1		3				
Cholelithotomy	3		1				4				
Chondroma:											
Neck, excision	1						1				
Testicle, castration	1						1				
Cleatrl of skin:											
Hand, plastic repair				1			1				
Unqualified excision	2						2				
Clinous, excision			1								
Constipation, ilio-colostomy	1			2			3				
Contracture of joint, finger, amputation	2						1				
Corn, toes, excision	1						1				
Crush:											
Abdomen, laparotomy (died, peritonitis)		1					1				
Fingers, amputation	6		2				2	1			
Foot, amputation			1				1				
Hand, repair of stump			1								
Leg, amputation			2				2				
Legs (both), amputation (died, 2 shock)		2					2				
Pelvis, laparotomy	1						1				
Toe, amputation	1		4		1		5				
Cystoma:											
Face, excised	5										
Neck, excised	5										
Pancreas, exploratory, incision	1			1			2				
Scrum, excision	1										
Unqualified, excision	29				1		5				
Dermocystitis, extirpation of sac	1										
Dermofly:											
Fibrov, reduction			1				1				
Fingers, amputation	1										
Fingers, excision of callus	1		1				2				
Finger, tendon sutured			1				1				
Fingers (webbed), plastic repair	2		1				3				
Toes, amputation	4						3				
Detachment of retina, sclera trephined			1								
Deviation of nasal septum, resection	246		2				1				
Dislocation of:											
Cartilage, knee, chondrectomy	9		2	3			13				
Claicle, suture	1						1				
Fibrov, manipulation			1				1				
Foot, reduction			1				1				
Shoulder, open reduction			1				2				
Vertebra, reduction (died, paralysis)		1									
Wrist, excision of scaphoid				1			1				
Deverticulitis, cecum, excision			1				1				
Ectropion, plastic	3		2				1				
Epididymitis:											
Epididymectomy	11						9				
Incision	14						13				
Epithelioma:											
Lip, excised	2		1				2				
Unqualified, excision	2										
Ethmoiditis, ethmoidectomy	2		3								
Fibroma:											
Breast, excision	4						2				
Scrotum, excision	1						1				
Unqualified, excision	4										

## OPERATIONS—Continued.

Report of surgical operations for the calendar year 1917—Continued.

Operations.	Result.					Anesthetic employed.					
	Cured.	Died.	Improved.	Unimproved.	Transferred.	Chloroform.	Ether.	Ether with other.	Gas.	Other general.	Local or none.
Incision and cautery.....	1						1				
Excision of bone.....	55		7	1			52	1	4		7
Amputation.....	1						1				
Amputation, partial.....	4		1		1		4	1			1
Amputation, complete.....	1						1				1
Amputation, partial.....	2			2			1				1
Amputation, complete.....	1						1				1
Amputation, partial.....	3						2				1
Open reduction.....	1						1				
Open reduction.....	2						2				
Removal of plate.....	1						1				
Resection.....	2						2				
Wired.....	2		1				3				
Multiple amputation.....	1						1				
Incision, suture.....	1						1				
Plated.....	2		1				3				
Open reduction.....	1						1				
Osteotomy.....	1							1			
(phalanges), incision and.....	1						1				
(phalanges), wired.....	1						1				
(phalanges), amputation.....			1								1
(phalanges), osteoplastic repair.....	2						2				
(phalanges), reduction.....			1				1				
(phalanges), (ulna) plated.....			1				1				
Open reduction.....	1						1				
Removal of plate.....	1		1				2				
Sutured.....	1						1				
(radius) plated.....	1		1				2				
(radius and ulna) plated.....	1		1				1				
(ulna) excision of fragment.....	2						1				
(ulna) wired.....	1						2				
Plastic repair.....	1						1				
(phalanges) amputation.....	5		2				4				3
(phalanges) sequestrotomy.....	1						1				
(phalanges) sutured.....	2		1				3				
(phalanges) open reduction.....	1						1				
(phalanges), (old) reset.....	1		1				1				
Open reduction.....	2						2				
(condyle), fragment excised.....	1		1				1				
(condyle), osteoplastic repair.....	1						1				
(condyle), plated.....	1		1				2				
(condyle), wired.....			1				1				
Supermaxilla, radical sinus.....	1						1				
Maxilla, fracture and wiring.....	1		1				1				
Maxilla, sequestrotomy.....	1						1				
Maxilla, wired.....	1				1		1				1
Plated.....				1			1				
(tibia), open reduction.....	1						1				
(tibia), wired.....	2						2				
(tibia and fibula), open re.....											
(tibia and fibula), retention.....	1		1				2				
(tibia and fibula), retention.....					1		1				
(tibia and fibula), plated.....	1							1			
(tibia and fibula), plated.....	1		1				2				
(tibia and fibula), osteoplastic.....					1		1				
(tibia and fibula), plated.....	1						1				
(tibia and fibula), reduction, splints.....	2						2				
Repair.....	2						2				
Amputation.....	1										2
Amputation.....	1						1				
Amputation.....	1						1				
Amputation.....	1						1				
Amputation (died: hem.....		1			2		3				

**OPERATIONS—Continued.**

**TABLE 5.—Report of surgical operations for the calendar year 1917—Continued.**

Operations.	Result.					Anesthetic employed.					
	Cured.	Died.	Improved.	Unimproved.	Transferred.	Chloroform.	Ether.	Ether with other.	Gas.	Other general.	Local or none.
<b>Fracture—Continued.</b>											
Skull, compound, exploratory			1				1				
Skull, compound, trephined (died: 2 hemorrhage)		2	3				5				
Skull, simple, decompression (died: hemorrhage)		1					1				
Skull, simple, plastic repair	1						1				
Tibia and ulna, compound, fragments removed				1							
Vertebra, simple, laminectomy		2					2				
Vertebra, simple, osteoplastic repair	1						1				
Zygoma, simple, open reduction	2						2				
<b>Frostbite:</b>											
Hand, amputation				2			2				
Leg, amputation (died: shock)		1	1				2				
Ganglion, wrist, resection	3						1				
<b>Gangrene:</b>											
Foot, amputation			1				1				
Hand, amputation			1				1				
Toes, amputation	2					1					
Gottre, thyroidectomy	7		2				9				
Hallux valgus, resection	13						12				
<b>Hammer toe:</b>											
Amputation	17		1				10				
Tendoplastic	4			1			2				
Hematoma, traumatic, incision	3						2				
Hemorrhoids, removal and repair (died: septicemia)	424	1	2	1			355	5	33		15
<b>Hernia:</b>											
Epigastric, herniotomy	5			1			5				1
Femoral, herniotomy	2						2				
Inguinal, herniotomy (died: nitrous acid poisoning)	835	1	2		5	2	798	26	2		18
Umbilical, herniotomy	2						1	1			
Ventral, herniotomy	17		1	1	1	1	18		1		
<b>Hydrocele:</b>											
Excision and repair	57		1				52	2	1		1
Orchidectomy	1						1				
<b>Hypertrophy of mammary gland, extirpation of gland</b>	2		1				3				
Hypospadias, transplantation of urethra							1				
Ingrowing nail, excision	141		1				5				157
Intracranial injury, decompression			2				2				
Iridocyclitis, enucleation	1						1				
Keloid, excision	1										1
Lipoma, enucleation	13						4				9
Loose body in joint, knee, excision	4		1		1		4				2
<b>Lymphadenitis:</b>											
Axilla, excision	1										1
Cervical, adenectomy	6		1		1		6				2
Inguinal, excised and incised	197		9			10	61		1		124
Unqualified, excised and incised	12		1				5				8
Lymphangioma, dissection	2										2
Lymphangitis, foot, incision				1			1				
Lymphoma, excision	1										1
<b>Malformation, congenital:</b>											
Orchidectomy	1						1				
(Spina bifida) excision	1						1				
Replacement of testicle	1		2				3				
Unqualified, dissection	2						2				
<b>Mastoiditis, curetted, radical and trephined (died, 3 septicemia, 1 toxemia, 2 meningitis, 1 abscess of brain)</b>	124	7	17		6	5	145	4			
<b>Meningitis, ligation of internal jugular and incision of lateral sinus</b>	1						1				1
<b>Multiple injuries extreme, plastic repair of face</b>			1								
Myxoma, parotid gland, excised	1										

OPERATIONS—Continued.

of surgical operations for the calendar year 1917—Continued.

Operations.	Result.					Anesthetic employed.				
	Cured.	Died.	Improved.	Unimproved.	Transferred.	Chloroform.	Ether.	Ether with other.	Gas.	Other general.
and curetted	1		1				1			
and curetted	1		1				2			
ision	1						1			
and curetted	1		1				2			
curetted	1						1			
curetted	1						1			
curetted	1									1
	1		1				2			
	2				1		3			
l:	2		1				3			
(toxemia)	1	3					3			
(3 shock)	1						1			
um.	1						1			
tion of eye	6						6			
y.	4						4			
	2						2			
ion.	4		1	1			4			2
on	1						1			
age	3		5		1		8		1	
f sequestrum	1		2				2			
in	1						1			
cholecystectomy	1						1			
on	1									1
ision	7									7
and curettage	1						1			
on	1		1	1			1	1	1	
	2		1		1	1	2			1
	1						1			
my.	1			1			1			1
curettage	1				2		2			
ny and drainage (died, 2 sep-	2	2	1				5			
l, toxemia)	1	1					1			
	732				1	1	10			722
y.	1						1			
r:	1		1					1		1
	1									1
	2		2				2			2
	178	42	48	1	27	11	54	3	47	171
arotomy	1	1					1			1
al.	23		5				2			26
phincter and cauter	1						1			
pair	4						4			
and repair	35						1			34
n.	2						1			1
ectomy	1				1		1			
ircumcision	262		6				4			264
partial amputation	4						4			
inectomy	28									28
tic gastrojejunostomy	1						1			
ny	1				1		1			1
suture of fascia	1						1			
d, plastic repair			1				1			
air	4			1			1			
y	4						4			
y	1		1		1		2			

### OPERATIONS—Continued.

TABLE 5.—*Report of surgical operations for the calendar year 1917*—Continued.

Operations.	Result.					Anesthetic employed.					
	Cured.	Died.	Improved.	Unimproved.	Transferred.	Chloroform.	Ether.	Ether with other.	Gas.	Other general.	Local or none.
Sarcoma:											
Foot, amputation.....	1						1				
Foot, excision.....	1		1				2				
Intestine, ilio colostomy.....		1					1				
Leg, amputation.....	1						1				
Leg, excision.....			2				1				1
Neck, excision.....	1						1				
Septicæmia, incised.....		1									1
Sinus:											
Frontal, excision.....	3						3				
Sacrum, curettage.....	2						1				1
Unqualified, incised.....	3										3
Unqualified, resection.....	3		4			1	3		1		2
Sinusitis:											
Frontal, evacuation of antrum.....	12		7		1		6				14
Frontal, turbinectomy.....	1						1				
Maxillary, drainage.....	2						1				1
Spur on nasal septum, removal.....	6										6
Stenosis of pylorus, gastroenterostomy.....	2						2				
Strabismus, tenotomy.....	3										3
Stricture of urethra, urethrotomy.....	1										1
Symplepharon, plastic.....	1										1
Synostitis:											
Hand, incised.....			1				1				
Knee, partial excision.....	1										1
Syphilis (Iritis), tridectomy.....	1										1
Talipes, resection.....	1						1				
Thrombosis:											
Internal jugular, ligation.....					1		1				
Jugular, resection.....	1						1				
Foot (vein), ligation.....	1						1				
Tonsillitis, tonsillectomy and tonsillotomy.....	1,673		2			2	175	7			1,491
Trachoma, curettage.....	1						1				
Tuberculosis:											
Arm, amputation.....	1						1				
Cervical glands, dissection.....			1				1				
Inguinal glands, incision.....			1				1				
Leg, amputation.....			2				2				
Peritoneum, incision and drainage.....			1				1				
Testicle, orchidectomy.....	2		2				4				
Tumor:											
Arm, excision.....	1						1				
Back, excision.....	1										1
Breast, excision.....	2		1				2				1
Forehead, excision.....	1						1				
Leg, excision.....	1						1				
Neck, extirpation.....			1								1
Orbit, excision.....	1						1				
Parotid gland, excision.....	1						1				
Uter of eye and adnexa, enucleation.....			1				1				
Uter of duodenum:											
Enterostomy.....	7						7				
Exploratory incision.....	1			1			1				
Uter of leg (tropic), amputation.....	1						1				
Uter of skin:											
Excision.....	3						1				2
Plastic repair.....	2					1	1				
Skin graft.....	2						1				1
Uter of stomach:											
Exploratory incision (died; peritonitis).....	1	1	1	1			4				
Gastro-enterostomy (died; hemorrhage).....	9	1	2			1	11				
Repair of perforation.....	2						2				
Union of fracture faulty:											
Amputation of toe.....	1										1
Excision of callus.....			1				1				
Fragment removed.....			1				1				
Open reduction.....			1				1				
Open reduction and suture.....	1						1				
Uvula, elongated, uvulotomy.....	6										

## OPERATIONS—Continued.

List of surgical operations for the calendar year 1917—Continued.

Operations.	Result.					Anesthetic employed.					
	Cured.	Died.	Improved.	Unimproved.	Transferred.	Chloroform.	Ether.	Ether with other.	Gas.	Other general.	Local or none.
and ligation.....	390					1	337	4	2		48
igation.....	59		4				53				10
of perforations (died; 2 shock, (died; pneumonia).		3 1			1		4 1				
ion.....	2						2				
ected bone.....	1				1		1				1
vessels.....	1										1
issue.....	2						2				
incision.....	1						1				
issue.....	1						1				
ved.....	9						5				4
curettage.....	2						2				
oved.....	1										1
of fracture.....		1					1				
temoral vein.....					1		1				
ments removed.....	6										6
y and tenorrhaphy.....					1		1				
red.....	1										1
y and suture.....	2						2				
air.....	1							1			
air.....	2						2				
ly removed.....	1										1
ly removed.....	1										1
endon.....	1						1				
ve.....	1						1				
.....	1	1									2
ion.....	14		5		1	1	10				9
scar.....	1				1		1				
air.....	1						1				
endon.....	2	1			1						3
.....	2						1				1
y (died, shock).....	1		3				4				
drainage.....	2	1				1	1				
pair.....	2						1				1
.....	1										1
.....	1										1
graft.....	1						1				
atory incision.....	1										1
immobilization.....	1										1
.....	1						1				
y.....	1				1		1				
(8,047).....	7,511	99	279	35	123	60	3,856	86	05		3,937

## DENTAL WORK.

TABLE 6.—Dental operations for the calendar year 1917.

Operation or treatment.	Number of cases.	Operation or treatment.	Number of cases.
<b>Fillings:</b>		<b>Impacted teeth:</b>	
Amalgam, ordinary.....	29,437	Corrected.....	264
Amalgam, built on post.....	487	Extracted.....	346
Cement, permanent.....	9,644	<b>Inlays:</b>	
Cement, synthetic.....	5,991	Gold, new.....	1
Cement, temporary.....	2,291	Porcelain, new.....	1
Gutta-percha, permanent.....	963	Removed (gold or porcelain).....	53
Gutta-percha, temporary.....	7,455	Recemented (gold or porcelain).....	184
Other than listed.....	677	<b>Maxillae treated:</b>	
<b>Abscess:</b>		Fractured.....	65
Acute and blind, lanced.....	1,086	Necrosed.....	123
Acute and blind, root opening.....	620	<b>Prophylaxis:</b>	
Chronic and fistulous, treated.....	641	Calculus removed (sets).....	7,772
<b>Bridges:</b>		Cleaned and polished (sets).....	5,955
New.....	17	<b>Pulp:</b>	
Removed.....	150	Exposed and extirpated.....	4,232
Recemented.....	441	Exposed and devitalized.....	3,776
<b>Crown:</b>		Putrescent.....	4,551
Gold, new.....	42	<b>Roots:</b>	
Gold, removed.....	228	Canals filled.....	10,827
Gold, recemented.....	400	Canals treated.....	11,166
Porcelain, new.....	25	Porcelain crowns (incisor).....	298
Porcelain, removed.....	89	Porcelain crowns (mucupid).....	556
Porcelain, recemented.....	396	Extra-acted.....	17,730
<b>Gums treated:</b>		Teeth extracted (other than roots).....	3,419
Gingivitis.....	1,103	Treatment (other than listed).....	4,600
Pyorrhoea.....	809		
Other local inflammation.....	1,782	<b>Total operations.....</b>	<b>140,822</b>

## RECRUITING.

TABLE No. 7.—Recruiting statistics, Navy and Marine Corps, for the calendar year 1917.

Character.	Navy.		Marine Corps.			Naval Reserve.	For civilian cruise.
	Original.	Reenlistment.	Original.	Reenlistment.	Accepted applicants.		
Total applicants.....	384,821	12,925	99,378	1,778	25,556	88,137	4
Total enlisted.....	136,669	9,290	22,245	1,628	23,787	60,564	4
Examined by medical officer.....	336,345	10,742	89,658	1,762	24,646	86,390	4
Rejected by medical officer.....	162,669	894	30,088	94	1,492	25,411	.....
<b>Principal cause of rejection by medical officer:</b>							
Abscess conditions (general).....	43	.....	.....	.....	.....	3	.....
Alcoholic.....	761	15	163	1	1	153	.....
Deformities.....	9,540	33	1,681	2	120	797	.....
Drug addict.....	24	.....	10	.....	2	4	.....
<b>Ear:</b>							
Defective hearing.....	4,267	75	839	4	17	384	.....
Other auditory diseases.....	2,814	34	501	1	77	77	.....
<b>Eye:</b>							
Color blind.....	5,733	12	1,202	1	12	962	.....
Defective refraction.....	29,945	182	4,845	8	58	5,839	.....
Other visual diseases.....	1,865	16	399	.....	44	97	.....
Febrile conditions.....	311	1	14	1	2	6	.....
Flat feet.....	11,072	29	3,374	4	89	2,041	.....
Gastrointestinal tract, catarrhal conditions.....	126	3	15	.....	5	9	.....
Genito-urinary, nonvenereal.....	1,473	6	249	.....	3	205	.....
Genito-urinary, venereal.....	5,647	100	1,101	5	100	539	.....
Glands enlarged.....	57	1	.....	.....	.....	.....	.....
Gout or tendency to.....	946	9	280	.....	6	32	.....
Growth (cysts, tumors, etc.).....	53	.....	11	.....	1	9	.....
Heart affections.....	7,608	72	2,856	14	169	1,999	.....
Height, under.....	6,712	7	1,099	1	15	605	.....
Height, over.....	139	.....	114	.....	.....	16	.....



# RECRUITING—Continued.

Recruiting statistics, Navy and Marine Corps, for the calendar year 1917—Continued.

Category.	Navy.		Marine Corps.			Naval Reserve.	For civilian cruises.
	Original.	Reenlistment.	Original.	Reenlistment.	Accepted applicants.		
Section, etc.—Com.	481	4	124			80	
ent, under	2,027	12	367		19	798	
ry to	4,865	30	1,364	2	28	1,105	
tes	4					8	
	728	2	150	7	12	25	
ties	928		245		8	65	
ms:							
	82		4		3	8	
	123	5	18		3	16	
	2,222	16	646		17	264	
	685	1	10			8	
t, out-of-hal condi-	445	2	21		5	25	
tions	147	3	6		3	5	
	2,976	16	751	1	17	225	
	861	3	112			22	
ionable	65					5	
	12,854	31	2,351	15	40	2,506	
	1,580	1	218	1	10	95	
surveys	2,261	16	544		75	263	
and marks	83		7			7	
ucose veins	6,500	35	1,326	16	183	1,453	
	137	1	49		4	230	
	21,531	98	2,721	16	268	4,204	
	179	5	71		2	26	

# FINANCIAL.

Statement of total cost of maintenance and of average cost per diem and subsistence of naval hospitals for the fiscal year 1918.

Hospital at:	Total cost of maintenance.	Subsistence.	Maintenance.	Subsistence per diem.
		<i>Days.</i>		
	\$125,737.03	72,393	\$1,861	\$0.730
	92,612.61	63,899	1,449	.5834
	181,955.82	121,500	1,497	.633
	314,180.27	169,249	1,8562	.5395
	317,719.65	173,554	1,8306	.6555
	459,598.24	232,591	1,3818	.5841
	199,856.25	91,252	2.19	.5999
	146,621.17	65,413	2.24	.59
	311,788.31	269,752	1.155	.5402
	303,530.76	270,158	1.123	.517
	46,725.32	19,464	2.4006	.6262
	853,997.29	224,341	3.8067	.5905
	580,183.31	492,785	1.177	.6411
	27,191.73	30,188	.9007	.5661
	47,269.82	51,489	.91805	.43448
	26,404.28	16,727	1.578	.5374
	100,587.82	38,373	2.62	.66
	271,674.74	153,191	1.773	.625
	115,181.06	79,441	1.4498	.6733
	107,295.60	83,787	1.281	.5559
	25,112.99	10,527	2.3855	.46
Islands	184,757.35	107,590	1.717	.75
	10,639.20	5,369	1.9816	.718

<sup>1</sup> Figures from Guam are not available at this time.

TABLE 9.—*Statement of the activities of naval medical supply depots.*

	Number of requisi- tions.	Value of requis- itions filled.
New York, N. Y.....	5,212	\$2,460,838.06
Mare Island, Cal.....	559	116,677.21
Canacao, P. I.....	143	17,082.58
Base Seven.....	83	21,883.22

TABLE 10.—*Statement of the naval hospital fund.*

The condition of the fund is as follows:

Balance on hand July 1, 1917.....	\$227,643.26
Transferred to credit since July 1, 1917.....	1,394,017.64
Total.....	1,621,660.90
Expended since July 1, 1917.....	1,453,975.35
Balance on hand June 30, 1918.....	167,685.55

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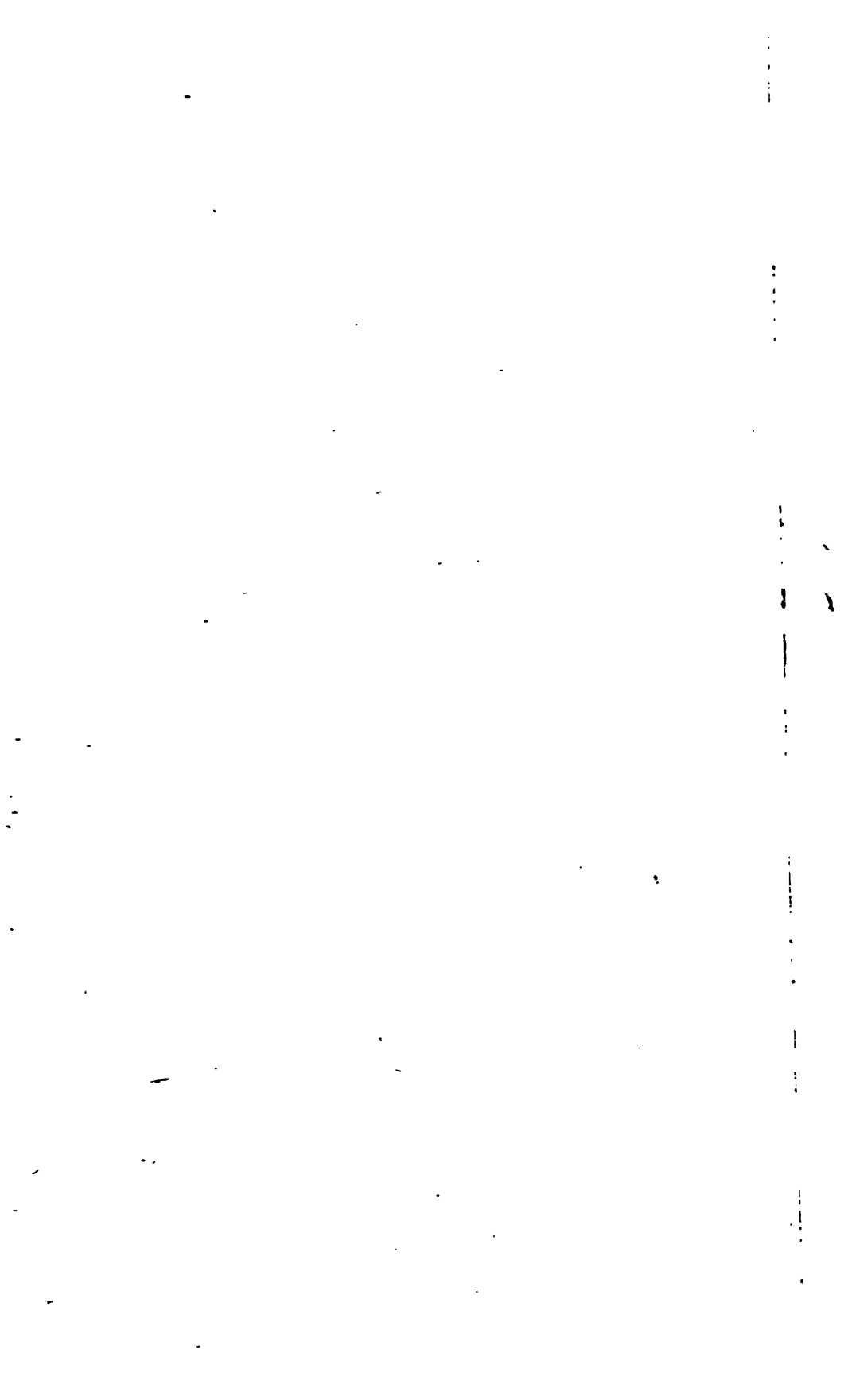
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NAVY DEPARTMENT  
BUREAU OF MEDICINE AND SURGERY

ANNUAL REPORT

OF THE

Surgeon General, U. S. Navy  
CHIEF OF THE BUREAU OF MEDICINE AND SURGERY

TO THE

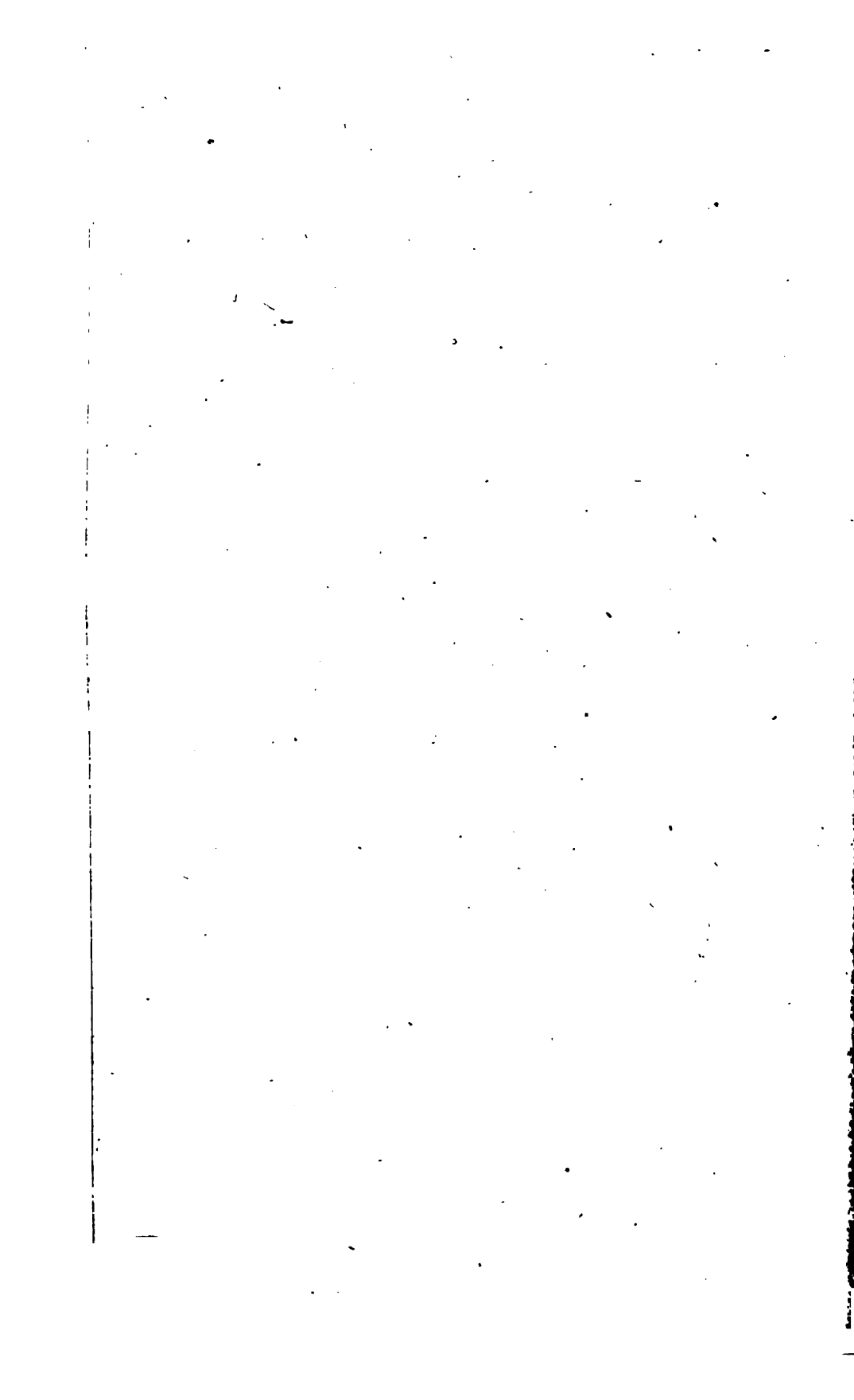
SECRETARY OF THE NAVY

FOR THE FISCAL YEAR

1919



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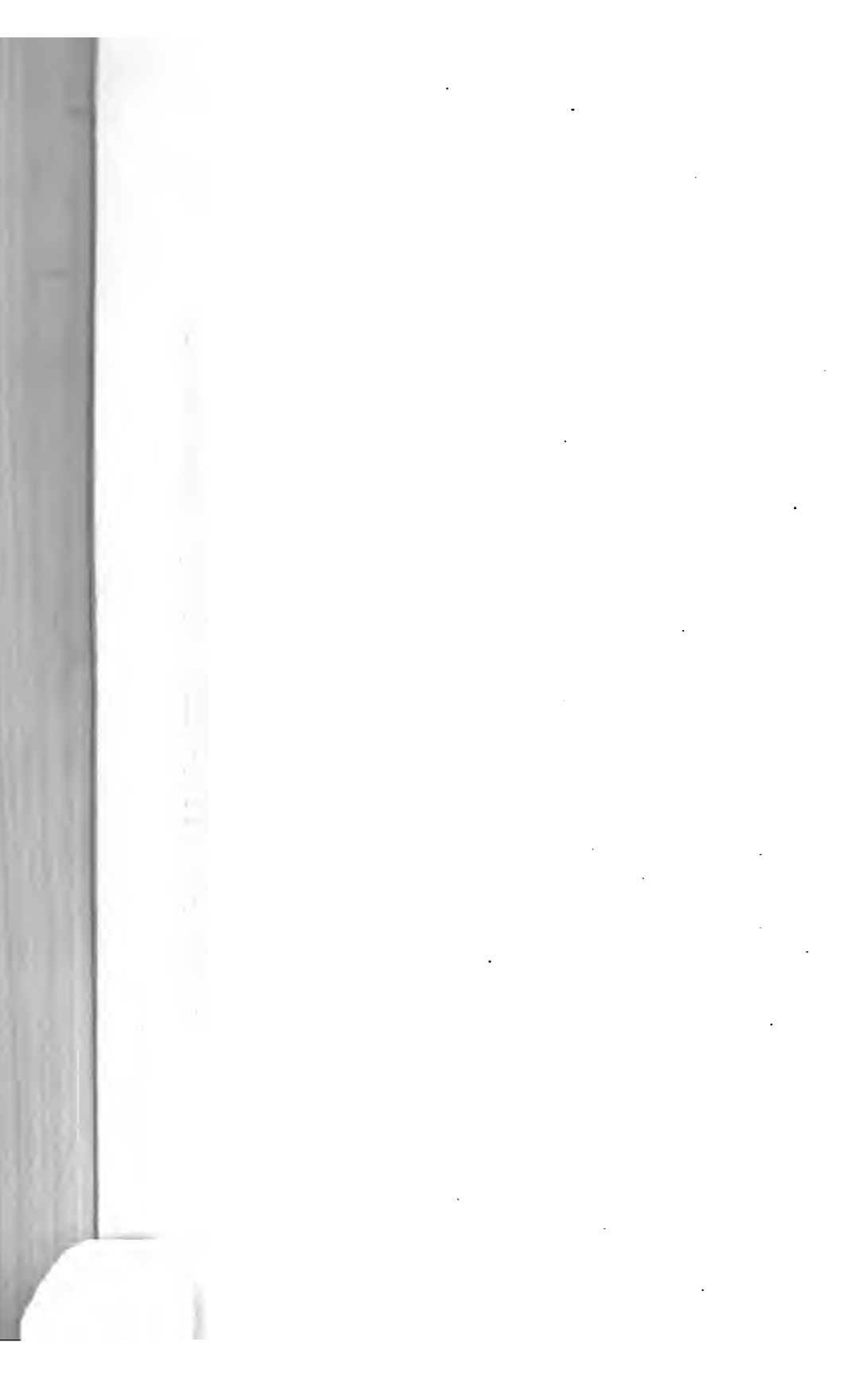
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*Harvard College*

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# REPORT

OF THE

## GENERAL, UNITED STATES NAVY.<sup>1</sup>

No. 132583.

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DEPARTMENT OF THE NAVY,  
BUREAU OF MEDICINE AND SURGERY,  
*Washington, D. C., October 1, 1919.*

of the Navy.

Annual report for fiscal year 1919.

which follows, covering health statistics up to the calendar year 1918 and the operations of the Medical Department of the Navy up to the close of the fiscal year (June 30, 1919). This report fully completes the record for war work except in two particulars—i. e., the return of the Army sick and wounded and the systematic efforts for the reeducation and rehabilitation of the disabled of the Navy and Marine Corps, the latter in conjunction and full cooperation with the other agencies engaged in this noble salvage.

The work of the bureau has continued to be one of strict attention to detail and concern—the health of the Navy and of the several millions of the Army committed to the care of the Navy while in hospital—has been deep. Furthermore this bureau and all its accredited branches have carefully refrained from any expression of opinion as to the performance of duty and the management of affairs in any domain where errors of judgment and execution have occurred, and to criticism or comment on matters beyond our jurisdiction.

Realizing that in all large enterprises human fallibility is inevitable and that performance unattainable in every minor detail, the work accomplished by the medical department, in full harmony with other branches of the Navy, has been characterized by the highest intelligence, energy, and fidelity.

Notwithstanding the huge undertakings confronting us when suddenly thrust into the war and of the manner in which they were completed demonstrates a foresight and adaptability, a resourcefulness and enterprise which may well make every member of the naval personnel hold his head high. It was because of these qualities that we have been able to play our part and even to lend a helping hand to those in need. On the other hand the occasional delays in transit or distribution of material or of supplies, and the fact that desirable but not vital articles have been frequently required, prompt assistance of the American Red Cross, an or-

<sup>1</sup>All statistics cover the calendar year 1918.

ganization not hampered by the restrictions inevitably connected with specific and legally limited appropriations.

As this report is being prepared we are in the midst of demobilization, a task as difficult in many respects as was that of expanding the numerically small naval personnel when war became imminent. The problem of gratifying the individual needs and wishes of scores of medical officers who promptly left their work to join the colors and play their part in the furtherance of the country's cause, and of accommodating hundreds and thousands of hospital corpsmen and the female nurses equally eager to return to the pursuits of peace, without producing such a shortage of attendants on the sick as to cause them to suffer neglect, is one of great difficulty. We still have to care for the large number of sick and wounded entrusted to us by the Army for safe delivery at home ports and to provide sanitary supervision and attendants on the sick who may develop among the healthy troops being returned by us for the Army from abroad.

Meanwhile, uncertainty in regard to possible legislation affecting their status causes many members of the temporary force who might be tempted to throw in their lot with us for life to hesitate, while not a few members of the permanent establishment find themselves affected by the allurements of professional work in civil life in view of the general ignorance of what may be the outcome of the present ferment of thought and feeling in regard to military concerns.

There would seem to be a lesson in our present situation in this particular. Now is the time to make a careful study and tabulation of findings in regard to demobilization so that should the contingency of war ever confront the country again the several departments of the Government may have on record the essential facts and use them rather than opinions as a basis for legislation. I am of the opinion that a definite scheme of demobilization is part of the most comprehensive plans for war since the permanent results of victory may often be determined by the preponderance or permanence of the conquering force; that plans for demobilization should be incorporated with the legislation enacted at the time of expansion to a war footing thus guaranteeing its conduct later, independent of individual wishes, passing influences or temporary expedients and deliberately calculated in advance so as to fully subserve the best interests of the Nation as a whole.

For example the medical and hospital corps should be among the last to demobilize after war. They are needed to care for troops routed home and the sick and wounded who can not be demobilized; their assistance is vital to demobilization since they conduct the physical examinations incident to discharge. It may seem a hardship to physicians and sick attendants to be detained after the termination of war but dissatisfaction on this score can scarcely be heeded when the alternative is neglect of the sick. In common justice, therefore, to those entering these branches it should be made clear, in advance of enrollments for war service, that they must expect to be among the last to be released.

I have gone somewhat beyond the usual limits of an annual report because this one summarizes and practically concludes the account of the bureau's activities for the war.

Sanitary reports and other documents have been extensively quoted with a view to giving a graphic presentation of the work ac-

the obstacles which had to be surmounted. In this becomes a repository of historical data in readable

semblage of these detailed accounts furnishes a valuable instructing each medical officer in regard to the problems and the methods employed outside of his own im-

again to commend to your notice for their fidelity members of the various branches of the Medical Department is also due the bureau staff, particularly chief clerk of the bureau, who has toiled early and prompt and efficient transaction of business.

### PERSONNEL.

rs.—In matters of personnel, as in all other department of the energy of work has been divided sharply of the armistice on November 11, 1918. From the fiscal year to that date the activities in the personnel were directed to maintaining a war complement, its replacements. After the signing of the armistice the Naval Reserve Force were discontinued and was begun.

my last report the commissioned personnel began the a force of 3,000, consisting of officers of the Regular temporary officers of the Navy and officers of the Force. Appointments and enrollments met all requirements on the day that active hostilities ceased, there were of 182 medical officers of the Reserve Force who were called to active duty. This inactive list, together with other offers of service, gave a sense of security against increased demand.

ship of the present Naval Reserve Force numbers wish to emphasize as strongly as possible the professional work which these officers have rendered the pay tribute to the patriotism of these men who left practices and gave themselves so nobly to the country's been and remains impracticable to offer commissions service of sufficiently high rank to be adequate, in many the professional attainments in civil life of men prominent specialties and they have accepted commissions lieutenant or lieutenant, junior grade. It is regrettable that the country at large does not understand more thoroughly the Naval Reserve Force. Many men whose standing in their communities is of the highest, have returned after the war with the rank of lieutenant or even lieutenant, and to the home community it doubtless appears that their services and ability were not recognized by the Navy. This is due to the fact that the average civilian does not know of a member of the Reserve Force called for war duty. At the termination of the emergency does not leave the service, but remains in commission, together with a certain retainer pay, until the privilege of reenrollment have expired. The privilege of reen-

rollment is extended to all, so that any officer may serve through his active-duty age either inactively or actively as a member of the Naval Reserve Force and gain promotion in conformity with his naval experience. To make rapid promotion to higher rank would soon mean that the Naval Reserve Force would be composed of administrative officers only or that officers of administrative rank would be performing duties which could be well carried on by men of junior rank with considerably less cost to the country. I believe, however, that a better realization of the Navy's position will soon obtain in all communities and that the holding of a commission in the naval service will in itself be considered a worthy distinction, regardless of the matter of rank.

Immediately after the signing of the armistice demobilization was begun, but at the same time there came a heavy demand upon the medical corps consequent upon the return of sick and wounded from abroad, the return transportation of the Army and an increase in the number of patients in our own hospitals. The transport service was increased from 38 vessels to approximately 129 vessels. Many of these ships were equipped solely for the transportation of healthy troops and were provided with adequate sick bays for that type of personnel, but not infrequently the sick and wounded were received by these troopships. In consequence the Bureau of Medicine and Surgery thought it essential to maintain on board each vessel a medical department adequate to meet exceptional demands, so that the total commissioned personnel of the medical corps required for this service was over 500 men. Their accomplishment is well shown by the fact that at the end of the fiscal year, June 30, 1919, 1,235,933 troops had been returned by this service from Europe, subsequent to the signing of the armistice. Of this number there were 111,522 transported as sick and wounded of the Army, Navy, and Marine Corps.

Soon after demobilization was begun it became evident that a classification of our total officers must be made in order that releases from active duty could be accomplished without detriment to the work which had to be completed. The medical officer of the regular establishment was considered *per se* an officer of career, whereas, the reserve officer and officer of the temporary Navy were deemed as they actually are, officers to meet an emergency only. In view of the fact that all officers of the medical corps holding temporary commissions in the Navy had received certain advantages, such as promotion, earlier than officers of the Reserve Force, it was held just that these men should give longer service than the Reserves. The Bureau of Medicine and Surgery, therefore, conducted its demobilization by first releasing officers of the Naval Reserve Force, and on June 30, 749 of this class had been actually relieved from all duty, and 60 additional were under orders restoring them to the inactive list. During the latter part of the year it was found practicable to accept the resignations of officers holding temporary commissions whose reasons for leaving the service were of the most urgent type, so that on June 30, 116 of these had been returned to a civilian status and our total demobilization of commissioned personnel numbered 927 officers. On July 1, 1919, the total of the medical corps on active duty numbered 592 officers of the Reserve Force;

the permanent medical corps, and 315 officers holding appointment, with 82 former pharmacists commissioned surgeons, leaving the corps over demobilized for the Navy of 241,000 plus the Marine Corps.

At present time there are 301 vacancies in the medical corps of the Establishment which are temporarily filled by officers on temporary appointments, and this condition means that at the end of these limited appointments the regular service will be on a very low list of that number. This, coupled with the fact that 104 resignations have been received from officers holding commissions, is giving the bureau considerable concern for the future. It is earnestly recommended that Congress provide a means for officers holding temporary appointments of the Reserve Force who have given satisfactory service during the war to enter the permanent corps, and in view of the fact that these officers have rendered satisfactory service it is desirable that the present statutory age limit be waived, and that the physical examination that will be required will be service in every respect. Should an age limit be necessary, it is recommended that 40 years be specified. This will insure a minimum of 24 years of prospective service before statutory age account of age would occur, and in view of the fact that officers should be credited with at least six years for obtaining a degree and gaining hospital experience, will conform with what I understand is to be the age requirement recommended for this type in the line of the Navy. The number of medical officers to be so appointed should not be specified other than as provided by present law. With the prospect of 405 vacancies in the medical corps on a naval strength of 131,000 enlisted men, plus the reserve, I feel that this recommendation may be made with confidence.

That the Reserve Force has afforded us specialists of high caliber in surgery, internal medicine, ophthalmology, otology, and gynecology has emphasized the shortage of officers of this type in the Establishment, and much thought has been devoted to the problem of an educational program in these specialties. It appears that a class of officers who have shown special aptitude for a course can be mapped out at the United States Naval Academy which will afford them a basis for further study. The course should extend for a period of about three months and each officer would be carefully observed to determine his progress. It would then be desirable to place the respective officers in the big medical centers of our country in which they might have clinical observation of the work of our senior teachers. I believe that it will be practicable to arrange courses in Boston, New York, Philadelphia, Chicago, and Washington. After six weeks or two months these young officers would be available for assignment to our own large hospitals to perform the duties of their individual specialties as well as the duties of a medical officer. Such an educational program would not only furnish the professional relief required, but would also give stimulation in our younger officers, heighten morale, and lead to better service. Such stimulation and interest is now particularly

required on account of the fact that many of our ambitious young men are offered opportunities in civil life to follow the specialties of their predilection with the result that it is difficult to bring them into the service or to hold them therein after appointment.

**DENTAL CORPS.**—The full proportion of dental officers permitted by law to the Navy has been more or less regularly maintained during the war, and it is in consequence of the demobilization that the dental corps was reduced by June 30, 1919, from a war strength of about 500 officers to:

Regulars .....	131
Temporary .....	3
Reserves .....	156
	<hr/> 287

A number of vacancies, approximately 55, exist in the regular corps, but this deficiency is for the present overcome by the utilization of the services of reserve officers on active duty.

As a result of the provisions of the naval act of 1918, 28 dental officers have the temporary rank of lieutenant commander while the remaining officers have the temporary rank of lieutenant.

Dental Reserve officers have been given promotion upon qualifying and many have been promoted to lieutenant. Promotion on the inactive list has also been given to those whose services on active duty have warranted such a reward. For a time considerable difficulty resulted from Reserve officers not interpreting correctly the conditions to be complied with before becoming eligible for promotion, but this condition is being rapidly cleared up.

A number of dental officers were fortunate in seeing service in France with the Army and Marines. Some of these officers, by the courtesy of the Army, were enabled to attend courses in jaw and fracture work established by the Army at the various hospitals and were thus enabled to carry to the naval hospitals an added experience of great value.

It is hoped that the dental corps may be increased sufficiently to admit of the services of a dental officer for at least each 500 men at the training stations. Without this proportion many of the men passing through training are unable to receive proper dental attention. Men after training are often sent to ships or stations on which it is difficult to get urgently needed treatment.

In selected offices dental X-ray machines have been installed with favorable results. Modern dentistry requires X-ray diagnosis, particularly in searching for and locating hidden foci of infection in the mouth and jaws.

A number of dental officers have been detailed upon request to the various naval hospitals and it is thereby hoped to lessen the total number of sick days in the Navy. Some conditions, such as rheumatism, have been found to often respond favorably upon proper dental treatment in a comparatively short time.

**NAVY NURSE CORPS (FEMALE).**—During the fiscal year the Navy nurse corps has witnessed a greater number of changes than at any time since it was established. From 1918 to 1919, the nurses appointed and enrolled in the Navy numbered 1,713, the increase over last year being noted by the following numbers: Nurses, United

28; reserve nurses, United States Navy, 56; nurses, Naval Reserve Force, 384; total increase, 568. During the year the nurse personnel of United States Navy Base Hospital No. 4, numbering 65, was detached from the various naval hospitals in the United States where the members had been on temporary duty and mobilized as a unit and reported at Leith, Scotland, for this base. Although functioning for a comparatively short period, August 17, 1918, to January 15, 1919, the report of this unit indicates an unusual activity and variety of work during the five months' service. The nurses performed a very large amount of the work necessary in taking over the parish poorhouse, cleaning, and equipping, until an approved modern hospital was completed as the final result. The work was hard, the hours long, and the climatic conditions were unpleasant, but the report indicates an exceptionally fine spirit of cooperation and that this unit had to endure the sorrow of losing by death several of the most popular nurse members who succumbed to pneumonia during influenza, a short time after the hospital was completed.

On August 28, 1918, 40 members of the nurse personnel of United States Hospital No. 4 were separated from the hospitals in the United States to which they had been assigned for temporary duty and sent to Queenstown, Ireland. The hospital buildings there were constructed by the Navy Department and were similar in type to the emergency type used in the United States. The nurses of this unit, therefore, entered immediately upon their actual professional work and were not required to adjust themselves during a long period of time to remodeling unsuitable buildings as in the case of the other base hospitals. Statements have reached the bureau of the Navy Department in the regard in which the nurse members of this unit have performed their duties in the entire countryside; and there is on record a letter from the commanding officer of the troops on board the ship on which they made passage to Queenstown, noting his appreciation of the high standard of professional services which they volunteered and rendered under the most difficult conditions involving personal hardship and extreme fatigue.

During the year, for the first time since the establishment of the United States Navy Nurse Corps, the nurses were assigned to ships in their professional capacity. There was no apprehension concerning these assignments, as such a departure from the usual policy of the department, was realized that there were discomforts and adjustments in the performance of continuous duty on shipboard for which the nurses were well prepared by their hospital experience. The official reports from the ships, however, noting the character of the work, the manner and bearing and general adaptability of the nurses, have been most favorable. It would appear also from the reports that the good influence of these carefully chosen women was reaching in scope and character. A group of six nurses were assigned to the U. S. S. *George Washington* when the President's ship sailed for Europe on this ship December 2, 1918. This was followed by an assignment of six nurses to the U. S. S. *Albatross* on December 28, 1918, and four nurses to the U. S. S. *Imperator* on January 30, 1919. In addition to these assignments the bureau received reports from the commanding officers of 10 other transports

that nurses be detailed to their ships, but it was not possible to approve these requests, as the nurse personnel necessary to meet conditions in the naval hospitals could not be reduced by the required number. An exception was made to this ruling by a temporary assignment of four nurses to the U. S. S. *Martha Washington*, three nurses to the U. S. S. *Princess Matilda*, and two nurses to the U. S. S. *Porchatan*, which were utilized for the transfer of the wives and children of alien enemies from the United States to Rotterdam. Excellent reports have reached the bureau relative to the adaptability and initiative displayed by the nurses during the period covered by this unusual detail. It is believed, therefore, that the fears which may have been held regarding these assignments, based on the confinement and isolation necessary to transport and hospital-ship duty, have been unfounded. It has been proved that the nurses are able to maintain their professional efficiency and general helpfulness on ships to the same degree that they have demonstrated these attributes in naval hospitals.

The nurse personnel of the naval hospitals at Chelsea; Newport; New York; Philadelphia; League Island; Annapolis; Washington; Portsmouth, Va.; operating base, Hampton Roads, Va.; Charleston; Great Lakes; Fort Lyon; San Diego; Mare Island; and Puget Sound increased in varying percentages during the past year, and especially during the months covered by the influenza epidemic. The quarters were overcrowded, the eight-hour tour of duty was entirely in abeyance, and all requests for leave were disapproved. In spite of these hardships, or, it may be said, because of these hardships, a fine spirit of loyalty, devotion to their profession, and cooperation with their coworkers was demonstrated at each hospital. In addition to the increased number at these hospitals, nurses were assigned for the first time to the following stations: Wards Island, N. Y.; Parris Island, S. C.; Key West, Fla.; Yokohama, Japan; and to the care of the Navy sick at Georgetown University Hospital, Washington, D. C. Recommendations have been received at the bureau for assignment of nurses to Pearl Harbor, Hawaii, and to hospital ships.

With this increased work in the United States and in connection with the Navy personnel on foreign duty, it was somewhat difficult to maintain the usual number of nurses and the same degree of interest in the island possessions, for which the Navy is responsible. The number of nurses assigned to the Philippine Islands, Guam, Samoa, and Haiti was not decreased, however, and the work peculiar to these stations developed and has been recorded. Too much can not be said of the interest and efficiency of the nurses in developing the training schools for native women which have been organized in these islands.

The present chief nurse at Samoa, Miss Hannah Workman, with the approval of the governor and the senior medical officer, has established a series of classes for the pastors' wives. In addition to this work, she has developed the classes and obtained an increased number of probationers for the Samoan training school. An excellent plan has been established whereby the native nurses are now brought back to the hospital environment at stated intervals to stimulate their interest, to increase their knowledge of primary nursing, and to develop a spirit of welfare work. These native nurses, therefore, go back to the outlying districts with a greater enthusiasm to



le develop improved sanitary conditions and by their edge the lives of the children are conserved and infant reased. The Samoans are awakening to the necessity with the work of the naval medical officers and nurses. of the Navy nurses, stationed in Samoa, resulted in ion assigning Miss Grace Pepe, one of the first graduool, and a young Samoan of unusual mental developnited States Naval Hospital, Mare Island, Cal., for a onths for additional experience. It is hoped that the Miss Pepe will take back to her beloved island will ter interest for nursing and welfare work among the girls and through this medium it is believed that imons, particularly for the women and children, will island.

ults obtained in Guam by the training of the native eadily increased. The classes in midwifery are conchief nurse, and each midwife must pass a carefully ination before she is allowed to practice. In her te and develop a sense of responsibility in the young en, the chief nurse has been ably assisted by Miss . a Chamorro, who has been closely associated with cal department in Guam for nine years. During this demonstrated a fine spirit of service, and her efforts ly appreciated by naval medical officers and all the ve had duty in Guam. When the history of these ten, the name of Maria Roberta will appear as the worthy, by the sincerity of her efforts, to be named dered signal service in the development of the islands. school for native women established in Haiti is entersecond year, and the work and responsibility have n extent justifying the recent assignment of three y nurses. The last quarterly report submitted by the rse, Miss Lucia D. Jordan, contains an outline of the he pupils as conducted by Mrs. Marie Lincoln, and is ore detailed report than space permits. It is believed ears the training school will be so firmly established ment of Navy nurses will be necessary only in a super-

ment of the training school at the municipal hospital, rogresses favorably, and the work in connection with dispensaries established in Fredericksted and Chrisn Islands, has greatly increased. The assignment of ses and additional staff nurses has been necessary on wide separation of the stations. The young women in home hygiene and child-welfare work, and have arnest pupils.

ese requirements and the additional work on board rses who had been recommended for promotion were ired examination and were promoted to the grade of In accordance with the wording of the Army apall approved July 9, 1918, the grade of chief nurse is d as a permanent grade in the nurse corps, and nurses requirements, successfully pass the examination, and

are given an appointment in this grade, continue to hold this grade until their appointments are revoked. This recognition of the chief nurse grade has had a salutary effect upon the corps and has eliminated, to a great extent, the dissatisfaction which previously existed due to the unfortunate wording of the law as applied to chief nurses.

It can be seen from this report that an exceptionally high standard of trained nurse is required for the naval service. She is not only called upon to nurse the sick of the Navy, a requirement which can be met by all nurses who have graduated from training schools, but she is required to possess special qualifications of temperament, education, and training to enable her to teach the principles of good nursing to her fellow workers in the Navy, and to intelligently demonstrate the required treatments. She must also possess the adaptability to respond in the right spirit to the many unusual demands incident to the service, such as the nursing and educational missionary work outlined in the above paragraphs, and to develop this work as successfully as she performs her actual nursing and executive work in large naval hospitals. It is hoped that present and future commanding officers of ships and stations will appreciate the attributes of the nurses which have been especially evidenced during the period of the war. Their assignment to varied and greater responsibility develops a spirit of contentment and cooperation which reacts to the greater efficiency of the corps, and through this to the benefit of the service. Recommendations have been made to the department advising an increase in the number of grades in the corps, and an increased rate of pay for all grades.

Before mentioning the number of nurses who were released from the service during the year, the following facts should be noted: As the situation due to war conditions developed, the nurses throughout the country realized that the Army offered greater opportunity for duty overseas. This knowledge reduced the number of our applicants and was the reason why a large number of nurses already assigned to the service asked for release. These nurses were members of units and detachments who entered the Navy with the belief that they would be given service abroad. The great need for nurses in the Navy, as evidenced by conditions in naval hospitals, resulting from an influenza epidemic, dissipated much of the feeling of unrest; and the disappointment in not being sent to France was lessened by the knowledge that their work in this country was true war service. As this situation improved, however, requests for release were renewed by nurses who were offered more lucrative positions, and who, because of dependents, felt the necessity of accepting the higher pay; and nurses whose positions had been held for them during the emergency of war were urged to return in order that the civilian hospitals, where the situation had also become acute because of the lack of nurses, could resume the activities of their training schools. During the fiscal year the following numbers were released from the service: Nurses U. S. N., 48; Reserve Nurses U. S. N., 242; Nurses U. S. Naval Reserve Force, 224; a total of 514.

Until the autumn of 1918, the health of the nurse personnel of the Navy from the date of establishment of the corps had been remarkably good; reports of illness were but few in number, and but one death was recorded, that of Nelle M. Sherzinger, Guam, 1916. The war work in the Navy required the great final sacrifice from the fol-

ers of the corps, who died from illness contracted in  
while nursing patients assigned to their care, and their  
red on the honor roll of their country:

heresa, Great Lakes, Ill.  
usilla Marie, Mare Island, Cal.  
de E., Washington, D. C.<sup>1</sup>  
Marie, Norfolk, Va.  
R., New York.  
E., Great Lakes, Ill.  
L., Philadelphia, Pa.<sup>1</sup>  
th B., Great Lakes, Ill.  
Great Lakes, Ill.  
eat Lakes, Ill.  
Ethel, Washington, D. C.  
ance, Chelsea, Mass.<sup>1</sup>  
R., New York.  
ed A., Newport, R. I.  
n M., Hampton Roads, Va.  
n, Charleston, S. C.  
Olive, Great Lakes, Ill.  
Philadelphia, Pa.<sup>1</sup>  
a M., Chelsea, Mass.<sup>1</sup>  
R., Great Lakes, Ill.  
ce L., Overseas.  
y, Charleston, S. C.  
e E., Chelsea, Mass.<sup>1</sup>  
n Pearl, Mare Island, Cal.  
Kirkwood, Mrs., New York.

the recommendation of the department, a plot at Arlington  
set aside for members of the nurse corps of the Army

of nurses during the year made it necessary to re-  
from details of diet kitchens and graduate dietitians  
employed in their stead. The work has been under the  
of the Navy nurse corps, and 30 dietitians have been  
placed in 13 hospitals. This has resulted in a marked  
in the dietary of these institutions. It has been some-  
for these trained civilians to coordinate their work  
lished service conditions and the pioneer work in this  
others, calls for the type of woman possessing adaptabil-  
ility of mind. A tribute must be paid to the unques-  
e the dietitians rendered during the influenza epidemic.  
e Wind, one of the first dietitians assigned to duty in  
one who demonstrated an unusual devotion to duty,  
vice of her country at the naval hospital, Norfolk, Va.,  
nia following influenza.

phase of the dietitians' work was demonstrated in the  
Miss Doris A. Daniels as instructor and director of  
e gave a course of lectures covering six weeks each at  
ates Naval Hospitals at Mare Island, Cal., Great Lakes,  
adelphia, Pa. These classes were held for the medical  
, and hospital corpsmen, and the plan of the class work  
the fundamental knowledge of the three groups. The  
red from the commanding officers of these hospitals  
ncreased interest in this important subject, and the  
larly appreciated the effort made to place them within

<sup>1</sup> Recorded in Annual Report, 1918.

reach of a course of instruction which could not fail to develop their professional value.

Chief Nurse Frances Van Ingen, of Base Hospital No. 1, which was attached to the American Expeditionary Force, was cited by General Pershing for distinguished and meritorious service. I have been informed that the names of many chief nurses and nurses of the Navy nurse corps, who served during the period of the war, have been forwarded to the Navy Department, recommending consideration by the Board of Awards.

It is hoped that the splendid work of this corps, which has been self-sacrificing in its service, devotion to duty, in many instances resulting in disability and death, will receive the recognition and merit bestowed upon other Navy personnel.

Mrs. L. S. Higbee, superintendent of the Navy nurse corps, served as a member of the subcommittee of sanitation and public health; and as a member on the committee of nursing of the Advisory Commission of the Council of National Defense, the activities of which terminated April 1, 1919. She was also a member of the advisory council of the Army training school, which held four important sessions during the year; and is a member of the National Committee of the Red Cross Nursing Service, which held three open meetings and four executive sessions during the year.

**HOSPITAL CORPS.**—Since the organization of the hospital corps in 1898 it has rendered to the Navy a service of steadily increasing value and enjoyed the respect and confidence of the entire personnel, but during the war the very enviable reputation of this corps has become widespread throughout the country. Hospital corpsmen serving with the United States Marine Corps in Europe were cited for bravery, or received the *croix de guerre*, or the United States distinguished service cross, or were recommended for some award 321 times. Not a few were killed in action abroad or died of contagious disease while nursing patients committed to their care.

Many hospital corpsmen served independently of medical officers, on naval overseas transport-service ships, destroyers, and other vessels and acquitted themselves most creditably. The system of training for hospital corpsmen which has been in operation for many years successfully stood the test of war. Over 100 destroyers and other small craft operated in the war zone without commissioned medical officers on board, the representative of the medical department in each case being a naval hospital corpsman. Approximately 500 cargo vessels operated between the United States and ports in the war zone and many commendations have been received from the commanding officers of these vessels regarding the work of the hospital corpsmen on board. In the first group of 100 vessels there were approximately 10,000 persons, in the second group of cargo vessels approximately 50,000 persons. The hospital corpsmen attached to these vessels not only carried on the usual medical activities of small craft at sea, but in addition met the shock of the influenza epidemic with a record of efficiency not excelled by any civilian or military community. Not only were the crews of these vessels adequately cared for by the men of the hospital corps but hospital corpsmen were repeatedly called upon to administer first aid to persons rescued from shipwrecked vessels, from those which had col-

...sinking without lights or been damaged by the explosion of torpedos.

...of the Bureau of Medicine and Surgery in training its personnel to take the care of the sick of the Army and Marine Corps, and the efficient and proper care of the sick and wounded who were so rapidly returned to the front during the war and after the signing of the armistice. Hospital corpsmen, too, went into battle with the Marines, in the trench and dugout, on the march, and going over the

...man best fitted for first enlistment in the hospital corps with a good grammar-school and, if possible, high-school education and nearer 18 years of age than 25. For the training of hospital corpsmen the medical department maintains three schools for recruits, with a normal capacity of 300 recruits at Newport, R. I., one at Great Lakes, Ill., and one at San Francisco, Cal. An advanced hospital corps school with a capacity of 100 is maintained at the United States Naval Operating Base, Hampton Roads, Va. The instruction given to hospital corpsmen in these schools is brief but intensive. It endeavors to acquaint the men with the sources of information upon which they must rely for the performance of their duties and endeavors to lay out the varied scope of the activities of this branch. After graduation from the hospital corps school, the training of hospital corpsmen is continued at naval hospitals, naval stations, on board ships, in the mine and aviation units, and, in fact, wherever medical service is required. The advanced school at Hampton Roads is constructed for the instruction of hospital corpsmen who have had some previous medical service and aims to fit them for duties independent of a medical officer.

...of Medicine and Surgery faces a difficult problem in maintaining a hospital corps of sufficient size to meet the percentage allowed by Congress, i. e., 3½ per cent of the authorized enlisted strength of the Navy and Marine Corps. This is considered to be the lowest number capable of efficiently caring for the sick and wounded of the Navy and Marine Corps.

...report of the hospital corps made on July 1, 1919, gave the following figures:

...hospital corps.....	11,125
...hospital corpsmen.....	3,058
...of war "men".....	6,628
...remaining not eligible for release.....	1,439

...number 1,101 are men who recently enlisted and who will be available for service as assistants to medical officers for at least

...at indications, practically all the Reserve Force and the men who desire to be released, and very few of those who are released contemplate returning to the hospital corps. The hospital corps is recruited to its allotted strength of 191,000 men as of July 1, 1919, to June 30, 1920, plus the authorized strength

...men includes all who enlisted between Feb. 3, 1917, and November,

of the Marine Corps, 27,400, or a grand total of 218,400, a hospital corps of at least 7,500 men will be required. At the present time, first enlistments are being made at the rate of only 160 per month, which is manifestly far below the number necessary to maintain the hospital corps at its required and allotted strength.

There have been only 493 reenlistments since January 1, 1919, and 400 of these men are eligible for release. During the same period over 8,000 men have been discharged.

The principal reason for the increasing number of men desiring release and the decreasing number of men entering the corps is the comparatively low rate of pay offered by the Navy for the type of personnel required to intelligently perform the duties of hospital corpsmen, and the fact that in other branches of the Navy promotion to a commissioned rank above that of chief warrant officer is possible for the ambitious recruit.

At present, there is no opportunity for a member of the hospital corps to obtain a commission above that of chief pharmacist. As a result, the medical department has lost many of its best hospital corpsmen, who have been commissioned in the supply corps and in the line, while many of the best-trained men now in the corps are desirous of leaving it for more remunerative positions in civil life.

In order to increase the interest of hospital corpsmen in their work, to hold before them the viewpoint of the Bureau of Medicine and Surgery for their training, to show them the varied scope of their duties, and to maintain a means of communication with them, the Secretary of the Navy has authorized, and the Bureau of Medicine and Surgery publishes quarterly, a Supplement to the United States Naval Medical Bulletin, which is distributed to hospital corpsmen. This publication contains news of interest to the men of the corps, as well as professional and scientific articles written by members of the medical corps, by pharmacists and by the men themselves, and embodies criticisms and suggestions with a view to increasing the efficiency of hospital corpsmen in the work of the medical department, and it is considered that the Supplement is very satisfactorily accomplishing its purpose.

Since the beginning of the war all chief pharmacists and permanent pharmacists in the Navy have been given temporary commissions in the medical corps of the Navy. These officers with but few exceptions are not graduates of medical schools and their training has not been along lines which would qualify them to perform all the professional work of a doctor of medicine. Their work, however, has been of the utmost importance to the medical department and to the Navy. Among the duties of the commissioned pharmacists have been the selection, inspection, and care of all medical supplies, the training of thousands of newly enlisted hospital corpsmen, the supervision of the clerical work of the medical department, the supervision of the commissary departments of naval hospitals, laboratory work, X-ray work, pharmacy and chemistry, sanitation and other allied branches of work performed by the medical department. The utilization of the services of these officers along the lines for which they are especially fitted by reason of years of training and experience, spared to the country the professional services of medical graduates at the time when there was a grave shortage of doctors, and

in which they performed the duties assigned them was commended.

The status of pharmacists commissioned in the medical service is entirely satisfactory to the Bureau of Medicine and to the officers so commissioned. The title under which they are commissioned, i. e., assistant surgeon, implies a medical position and this anomalous position will inhibit further promotion of members of this group and will prohibit the promotion of other members of the hospital corps to a commissioned status in the future. New legislation is recommended which will reserve for the hospital corps members a distinctive commission and title in the hospital corps.

Approximately 200 members of the hospital corps, chief pharmacists, have been given temporary warrants as pharmacists since the beginning of the war. The work of these officers has been uniform and deserving of the highest praise and consideration. They have not only performed all the duties usually assigned to officers of the hospital corps but in addition they were placed on ships, and in marine forces at home and abroad and their assistance to the medical officers in caring for the sick and wounded of the Army, Navy, and Marine Corps elicited the highest praise from command and medical officers. The demand for these officers was at times in excess of the number available.

The attendance course for naval pharmacists conducted under the sanction of the Bureau of Medicine and Surgery by medical officers and permanent pharmacists since April, 1917, has done much to prepare the newly appointed pharmacists in the duties of their office. The course has created an interest in study and investigation on the part of the officers which will be of lasting benefit to the service and has markedly increased their efficiency and professional standing.

The distribution of the hospital corps on July 1, 1919, was approximately as follows:

ports	2,426
and other cruising vessels	200
tions	1,256
hospitals in the United States	700
ships	2,400
ships schools	300
stations	800
	3,043

#### MARINE UNITS IN FRANCE.

The easy task for our naval medical men collected from the military hospitals, and civil life to acquire a knowledge of the French language and adapt themselves to the requirements of Army and Navy. The medical officers assigned to the marine units abroad displayed an energy and versatility which soon enabled them to perform their duties.

They were at first assigned to provost marshal and other duties on the coast and in various inland towns of France. They were also assigned to the care of the sick and wounded in the hospitals and reservoirs, camps, and docks. The naval medical officers accompanying them were appointed health inspectors, and the work of preventing venereal disease, served as senior medical officers in the large Army camps and cheerfully rendered all possible assistance.

aid to civilian communities whose physicians were absent, almost to a man, with the colors.

Early in 1918 the Fourth Marine Brigade, the only one then present in France, was incorporated with the Second Division and assembled in the Department of the Vosges for special training. All medical officers serving with marines were thus brought under one marine commander but without any unification or centralization of medical command since the Army organization does not provide for a brigade surgeon. Each regimental surgeon acted independently and there were also medical officers in the marine machine gun battalion which acted as an independent unit. All brigade units were billeted in military barracks, houses, barns, storage sheds, etc., and their medical officers not only gave professional service to the troops, but acted as local sanitary officials and treated the native population.

During the training period a medical officer from each of the marine regiments was detailed for instruction at an Army sanitary school. One naval medical officer had attended a part of the session of the original First Corps school in the autumn of 1917. Three members of the naval dental corps attended the special course for dentists at the sanitary school. Our medical officers also received instruction at the British Army sanitary school near Arras and attended clinics in the French base hospitals of Paris and vicinity.

It was in the trench area near Verdun, occupied by the Second Division in March, that our medical officers first participated in military operations ashore in France. The superb medical and surgical equipment provided by the Medical Department of the Navy was far in excess of what could be transported to the battle front and much of it had to be stored in the training area, where it was later appropriated by the Army, as the Second Division never returned to its original area, owing to the nature of the military operations. When their medical stores were available and after experience had taught what was needed the Army made adequate provisions for the marine units. The early periods of service under the Army were not without disappointments and anxiety for the medical officers serving with marines. The Navy men were without representation on the division staff and were accustomed to more liberal provision of stores. Divisional representatives rarely communicated with marine medical units, and officials in the rear exacted certain procedures without a full knowledge of conditions at the front. Nor did it seem to our surgeons that their patients always received a maximum of consideration in the divisional field hospitals. Just prior to the Champagne offensive, at the end of September, however, a naval medical officer was assigned to the divisional staff as assistant division surgeon, and this measure proved of great value in unifying and coordinating the medical services of Army and Marine Corps units.

Naval medical officers and hospital corpsmen were in action from the time when the Second Division was thrown across the road from Paris to Château-Thierry, June 1, until November 11, participating at Belleau Wood, Soissons, in the Argonne, at the crossing of the Meuse.

It was conclusively demonstrated by the campaign that regimental and battalion surgeons must be men in the prime of life. The bureau made wise selection in its assignments, and though some of our men in France had little or no previous service they quickly developed to



possibilities resting upon them. A regimental surgeon had under him at least 6 other medical officers, 3 dental minimum of 50 hospital corpsmen, and was responsible for medical care of 3,700 men, as well as for all the details of medical supplies, battle casualty lists, and the evacuation of the rear. When in rest billets—the Second Divisioner out of line more than two weeks—there were many details of administration and training.

Our medical officers, originally sent to France as a regimental surgeon with marines, was eventually assigned to the 1st Army division field hospital, later became director of 1st division field hospitals, and prior to his return to the United States served as sanitary inspector for an Army division. A dental surgeon, originally the battalion dentist, became a regimental surgeon. Several of our naval medical officers were assigned to Army ambulance companies and Army division field hospitals. The medical personnel of the Fifth Brigade of Marines were given an opportunity to serve on the battle front, but their service was less valuable to the Army and creditable to themselves. It was where our medical officers were detached from their regular units for work with the Army proper they did good and gave once again the Navy man's usefulness whether afloat or ashore.

#### CASUALTIES IN MEDICAL DEPARTMENT.

Unkilled personnel	1
Killed personnel	12
Wounded:	
Unkilled personnel	8
Killed personnel	101
Unkilled personnel	0
Killed personnel	1

#### TOTAL STRENGTH.

Unkilled personnel	60
Killed personnel	12
Wounded personnel (hospital corps)	500

#### UNITED STATES NAVAL AVIATION FORCES IN EUROPE.

The strength averaged 1,330 officers and 12,300 men. The strength was 2,000 in January and the maximum 17,000 in November. In the early period of operations much-needed stores of medical supplies for the medical department were received from the United States, these being unprocureable on open purchase or from the United States Naval Medical Supply Depot, Brest, Belgium. At requests addressed to the Red Cross were later dispatched to fulfill all requirements by June. Each aviation station had a dispensary and was in direct communication with the main center for the treatment of major cases. The medical supplies were sufficient for the needs of the aviation service except for the influenza epidemic. The senior medical officer on duty at the headquarters, Lieutenant Commander H. H. Lane, Medical Director, United States Navy, has reported most favorably on the pro-

fessional ability and devotion to duty of the medical officers and hospital corpsmen serving under him.

Worthy of special mention is the case of Lieutenant (Junior Grade) A. M. Stevens, Medical Corps, United States Naval Reserve Force, who went out from Dunkirk in an open launch to rescue the victims of an aeroplane crash in the English Channel. On the way back the boat got off her course and came under the fire of enemy shore batteries, which sank the launch on the third shot. Lieutenant Stevens swam 2 miles to the beach and was there taken prisoner and sent to the *Offizieres Gefangenen, Lager Villingen, Baden*. The station at Dunkirk was a permanent target for the enemy and subjected almost nightly to violent bombing.

The conduct of the hospital corpsmen attached to the aviation service was of a high order. Though many of them began with little experience, they rapidly became proficient in their duties, thanks to the constant instruction and drilling of their medical officers.

The following table shows the total medical department personnel of this branch:

Stations in—	Medical officers.	Dental officers.	Pharmacists.	Hospital Corps.
France:				
Coastal stations.....	40	8	2	134
Northern bombing group.....	9	3	1	72
England.....	8	2	1	41
Ireland.....	11	1		35
Italy.....	4	1		12
Total.....	72	15	4	294

#### HEALTH CONDITIONS ON SUBMARINES.

Submarine Division No. 5 consisted, in 1918, of the U. S. S. *Bushnell* and seven submarines, which from February to November were based on Berehaven, Bantry Bay, Ireland, and patrolled from that point. During December, 1918, the base was located at Portland, England; for three weeks in January at Ponta Delgada, St. Michaels, Azores.

From time to time submarines were at first assigned to H. B. M. dockyard at Haulbowline, Queenstown, for overhaul and later on to Plymouth. These overhaul periods covered six to eight weeks and served as intervals of comparative rest and recuperation for the officers and men. The usual schedule covered eight days at sea and seven days in port.

During the eight-day patrol periods all men under treatment for venereal disease were not only retained aboard the tender, but by order of the flotilla commander, were considered as admitted to the sick list. Such men were, however, detailed to perform duty if not incapacitated and therefore suffered forfeiture of pay during the period of treatment when the boats to which they were attached were actually cruising on patrol. This punitive measure, however, did not produce the desired result of a low rate of venereal admissions.

It is again urged by Lieutenant Commander E. W. Brown, Medical Corps, United States Navy, that a regulation be adopted transferring all men contracting syphilis from submarine to general service, as

in the 1917 report. This should be done for two reasons: cases may develop open lesions and under the conditions of the prevailing become a menace to the health of the community. A course of treatment of not less than three years under supervision of a medical officer is essential. The proper management of the disease will tend to be more or less interrupted. Cases are frequently separated from the tender and cases are not available for treatment. It is also obvious that the treatment of a patient on submarine duty involves certain hardships not incidental to general service and is therefore not amenable to rapid response to treatment. In the British submarine service, syphilitics are, by regulation, promptly transferred to the surface.

In the spring epidemic of influenza a considerable proportion of the submarine crews was infected while on patrol—on certain occasions up to one-half of the personnel. It is of interest to note that the bulk of these men were practically well before the epidemic was completed. Commanding officers were carefully instructed in the first-aid care of such cases. In no instances were any cases delayed or interrupted on account of the epidemic.

Forward and forward battery compartments in the *L-1*, *L-2*, *L-3*, and *L-4* have been provided with a positive air supply. They are installed on the forward bulkhead of the central operating compartment with a duct leading to the forward battery and engine spaces.

The ventilation arrangement has continued to afford relief. There is still a slight taint of offensive odor and a general stuffiness. It is believed that entire comfort could be afforded if the blowers were of greater capacity.

It should be noted that the *L-9*, *L-10*, and *L-11* have not been provided with any arrangements for air supply to the two forward compartments. This situation should be remedied at the earliest opportunity, as these three boats now suffer many marked disadvantages when cruising on the surface.

*Each compartment.*—It is again urged that each compartment be provided with a desk fan of the usual type. Under surface conditions the chief factors in ventilation are physical rather than chemical. It is a question of overhauling, undue relative humidity, stagnation, with accumulation of odors, rather than the question of carbon dioxide and oxygen. The air should be kept in motion, and this will prove a valuable adjunct to the ship's ventilation system. Particular attention is paid to this feature in the British submarine service.

The serious effects of oil fog in the engine room originating from the relief valves and crank pits has been previously commented upon. This condition predisposes men on watch to congestion and catarrh of the nasal passages. It is believed that the oil fog is in part indirectly responsible for the marked prevalence of these complaints.

The elimination of this oil fog appears to be impracticable with the present two-cycle Diesel engine. Oil fog appears to be a negligible factor in British submarines equipped with four-cycle engines. For the future, all classes of submarines are equipped with the four-cycle engine. It will be of interest to ascertain the situation with respect to this problem.

The chief complaint among officers and men was with reference to the ear. The writer was very much struck with the large number of men presenting themselves for treatment. The symptom-complex in general was that of a mild middle-ear catarrh. In four instances it was necessary to permanently transfer men from submarines to the tender. While more prominent among machinist's mates, it was also reported among the other ratings. As an instance, it may be stated that at one time three ship's cooks were under treatment.

The probable causes of the conditions were discussed in the 1917 report. It is now believed that the air supply to the engines through the conning tower and induction valve is not sufficient to prevent a slight alternate air suction and release throughout the boat, which constitutes an additional factor. This induces a slight pull on the ear drum and is more noticeable in the two forward compartments.

This irritation, while very trifling, tends to have a cumulative effect over a period of months, particularly with ears presenting a history of previous injury or infection.

In a considerable proportion of cases there was a history of injury from diving or gunfire or ear trouble before entry into the service. In the case of men entering the submarine service with perfectly sound ears it is considered that serious trouble will not result. Greater care should be used, therefore, in ruling out candidates for submarines who have definite history of defective ears.

It was noted with great interest that diseases of the ear are not prominent in the British submarine service or not more so than in general service. This may in part be due to the lessened noise of the four-cycle engine, the relatively slight oil fogging of the air, and the sufficient air inlet, preventing suction in the air of the boat.

*Eye affections.*—A large number of cases of asthenopia or eye strain prevailed toward the end of a series of patrols. It is believed that this situation resulted from four factors, i. e., (a) excessive use of the eyes, (b) defective lighting, (c) refractive errors, and (d) glare. It was noted that the refractive errors were relatively slight in some cases. Reading was excessive owing to the monotony incident to patrol. The location of light was such that the eyes usually faced a bare filament and the light was not sufficiently intense to permit of excessive use without injury to eyes not normally strong.

*Intestinal stasis.*—The majority of the personnel were constipated during patrol, hence cathartics were in general use. While this tendency had always been marked, it was much more widespread, in fact, inevitable, under patrol conditions, due to lack of muscular activity and excessive consumption of an overconcentrated diet.

The situation could be improved by certain changes in the diet. The chief desideratum is a proper proportion of roughage. A number of officers have adopted the use of agar-agar on patrol with uniformly satisfactory results. Bran bread is more effective; potatoes should be partially replaced by such vegetables as beets, spinach, asparagus, cabbage, and carrots, all of which have considerable residue.

The average personnel consisted of 25 men and 3 officers. The watches for men were generally arranged for one in three; for officers one in four.

During patrol it was not practicable to provide facilities for men to get into open air on deck. In view of the state of the sea the

was accessible and sufficient space was not available for the number of men required for watch duties. Not more than two men were detailed for bridge watches. It will, therefore, be seen that the bulk of the personnel did not have access to the open deck during the entire patrol period. In fact, daylight was not seen at any time.

During the course of such a routine, the extreme physical monotony, and the tendency for officers and men to be bored as a result of coming to the surface with the possibility of being attacked by the enemy can be readily imagined. The situation of 18 persons confined in an air space of about 300 cubic feet under artificial light for a period of eight days.

The air purifiers were found to be quite satisfactory and were used on all boats during the longer periods of submergence. As the purifiers were operated conjointly from the eighth to the twelfth hour, and replaced by two fresh units from the twelfth to the fourteenth hour, inclusive. A full separate report has been submitted in reference to the efficiency of air purifiers, hydrogen acetylene, and hydrogen under charge conditions, and the results of hydrogen question.

Tests were carried out on the *L-1*, *L-2*, *L-3*, and *L-4* with mercuric iodine papers showed a slight positive reaction when submerged for one-half to one hour. On the *L-9*, *L-10*, and *L-11* negative results resulted after several hours' exposure. The personnel were watched for symptoms of incipient arsine poisoning. No symptoms were observed at any time.

The oxygen supply carried per boat is 1,000 cubic feet at atmospheric pressure, but oxygen was not employed during submerged patrols. There were a number of reasons for this practice. It was known that an oxygen supply was not carried on British submarines, the advice of Dr. Haldane being followed in this respect. The original oxygen of the contained air of the boat was used for 24 to 36 hours, reliance in an emergency being placed on the compressed air supply. It was known that British submarines of the *H*-class carried on 20-hour submerged patrols for long periods without indications of oxygen insufficiency, this being due to the free-air space than the *AL* boats of the Submarine Division.

Extended periods of submergence on patrol reached 18 hours would mean a gradual reduction of oxygen percentage as calculated on the basis of numerous actual tests on submarines.

There was there any physiological indication of oxygen deficiency was therefore considered a perfectly safe course to permit a drop of oxygen to 15 per cent under the conditions of a submarine. The oxygen reserve carried was therefore sufficient to supply for an emergency condition. In view of the location of the base of the submarine detachment the difficulty to frequent shipment and charging of oxygen cylinders that routine use of oxygen would not have been justified. The requirement was of a definite nature.

The location and management of heads has long been a problem on the boats of this division. During the first refitting of the *Albatross*, the heads were removed from the forward

battery compartment—the main living space of the boat—and installed in the forward section of the engine room. To provide space for this change the boiler originally installed for the steam-heating system was removed, experience having shown that it was not practicable to operate the system under patrol conditions.

An air-expulsion system operating at considerable depths was installed, based on a design in successful operation in British submarines. This arrangement has satisfactorily disposed of the question of the sanitary disposal of human sewage and the accumulation of fecal odors, thus dispensing with a hand-pumping operation.

The entire personnel was examined physically within a few hours subsequent to the return from patrol. This examination covered two heads, i. e., (1) *objective*—heart and lungs, blood pressure, mouth and throat, etc., and (2) *subjective*—with reference to present state of health and to any complaints as to well-being during patrol, care being exercised to avoid leading questions.

The following discussion is based on the examination of crews following 19 patrols:

1. *Respiratory effects.*—Officers and men were carefully questioned as to elapsed time submerged when shortness of breath or panting was first noticed. The majority of persons reported slight dyspnea on exertion after 10 hours, or at 2.5 per cent of  $\text{CO}_2$ ; in a few instances at six hours, or 1.5 per cent  $\text{CO}_2$ ; in a very few cases not before 15 hours, or at 3.75 per cent. There appears to be a considerable variation in the respiratory regulation for excessive  $\text{CO}_2$  in the case of a few individuals analogously to the varying response to oxygen depletion as shown also in the examination of aviators when rebreathing their own air. A small proportion complained of greater effect when in the prone as contrasted with the upright posture.

It is of interest to note that a division of the British *H*-class of submarines, basing at Berehaven, did not carry air-purification apparatus, although submerged continuously for 15 hours daily on patrol.  $\text{CO}_2$  estimations showed 3.5 to 3.75 per cent. While panting or exertion was reported, no decided inconvenience or cumulative effect was suffered.

2. *Pulse rate.*—

Submarine.	Number of men examined.	Average pulse rate.	Average systolic.	Average diastolic.	Average pulse pressure.
L-1.....	17	94	125	76	49
L-2.....	21	88	123	81	42
L-3.....	16	90	138	72	56
L-3.....	21	90	126	75	52
L-3.....	22	87	128	81	46
L-3.....	21	78	116	61	53
L-4.....	21	96	136	81	54
L-4.....	26	76	126	78	50
L-4.....	22	79	128	59	69
L-4.....	16	80	126	78	48
L-10.....	23	91	116	68	46
L-10.....	21	85	122	79	47
L-10.....	19	85	122	78	45
L-10.....	16	89	124	80	43
L-10.....	18	91	135	79	55
L-11.....	12	85	118	75	43
L-11.....	12	82	117	78	39
L-11.....	15	91	125	79	45
L-11.....	16	74	134	71	63
Average.....	19	86	125	75	51

In 19 series of examinations representing 19 patrols averages were taken of pulse standing, systolic blood pressure, diastolic blood pressure, and pulse pressure.

The average standing pulse rate in 19 examinations following patrol varied from 74 to 96, with an average of 86. There was therefore a tendency to rapid pulse, which is considered to be an expression of general fatigue and nervous tension resulting from patrol conditions.

3. *Blood pressure.*—The systolic pressure varied from 116 to 138, with an average of 125; the diastolic from 59 to 81, with an average of 75; the pulse pressure averaged 50.

The systolic pressure showed a slight tendency to increase above normal; the diastolic about normal. The data are not sufficiently positive to have any particular significance.

4. *Headache, insomnia, and loss of appetite.*—These complaints were very frequent and mainly from the older men, particularly chief petty officers who had been assigned to submarines with a long record of patrols. Such symptoms were also more pronounced in boats carrying out the longer continuous submerged periods. This situation was prominent with reference to the *L-3*, as this boat did not ordinarily come to the surface at noon. The insomnia and loss of appetite were more apt to be felt after the first three or four days of the patrol. During the earlier patrols these complaints were not marked.

The headache in many instances was symptomatic of constipation.

The latter condition, as already pointed out, was the rule. Cathartics were in general use during patrol periods.

5. *Deterioration of officers and men.*—This gradually developed as patrols proceeded. While in general not of a serious nature, it was indicated by loss of weight, pallor, the expression of the features, and general loss of tone, all the inevitable result of the monotony, defective atmospheric conditions, lack of bathing facilities, environment of artificial lighting, and a state of high nervous tension incident to antisubmarine warfare. The personnel tended to return from patrol in a fatigued condition, requiring two or three days for complete recuperation. The British submarine service had early recognized this state of affairs and the need for the adequate conditioning of the personnel by proper facilities at the base for comfort and recreation as well as frequent leave periods.

It was occasionally found necessary in the case of men debilitated by digestive, bronchial, and other affections to relieve from patrol assignment, although not actually transferred to the tender. In the great majority of cases complete recovery resulted in two or three months and patrol duty was resumed. The important point was to keep a sharp lookout for such individuals and begin conditioning before they became actually unfit for duty.

#### NAVAL RAILWAY BATTERY IN FRANCE.

The personnel for the six trains constituting the United States Naval Railway Battery in France included two medical officers and about 50 members of the hospital corps. This personnel entrained for St.

Nazaire June 9, 1918, and was assigned at the United States Army Camp No. 1 to barracks C-9, C-10, C-11 recently evacuated by negro troops and in a miserable sanitary condition. The unit immediately set about erecting barracks of its own near the railroad tracks, working day and night. On August 14 trains Nos. 1 and 2 left for the front, Lieut. L. M. Morris, Medical Corps, United States Navy, going as medical officer. Train No. 1 went into position at Soissons.

The trains were freely shelled by the enemy, the shells generally landing in a forest behind the gun position. A large number liberated mustard gas. The men had all been thoroughly instructed in advance by the senior medical officer, Lieut. Commander C. S. Stephenson, Medical Corps, United States Navy, and his assistant, Lieut. L. M. Morris, Medical Corps, United States Navy, and were proficient in the use of protective masks.

After this shelling the men were ordered to stay out of the woods for three days. The reason for this order was explained to them, and they were impressed with the necessity for such care and for the use of masks and helmets. Fortunately they escaped casualties. The closest shell fell 6 feet from the gun, and as luck would have it, no one was hit. From Soissons this gun went to Nixeville, remained about a week and then went into position near Nancy, but the armistice was signed and no firing took place.

Train No. 2 took her first position at Fontenoy-Amblanay. The sanitary conditions here were miserable, as we were on the grounds of an abandoned French camp. The garage (side tracks) was well protected from aeroplane attacks, but the tracks, both proximal and distal, were bombed with regularity. One night three bombs were dropped at the gun, a piece carrying away the side of the telephone booth in which two men were working, but fortunately no one was injured. The men were given an object lesson in the reason for lying down when being shelled and taking to shelter trenches. Attention was called to the fragments hitting high on a car 50 feet distant from the bomb hole. From here they went to near Flavvy-Martel, a position 5 kilometers from the front line. Our position was evidently known to the Boche, who shelled heavily a hill 500 meters away from our position as well as the bridge 1 kilometer away. The garage was 500 meters away, located in a forest. There were many good dugouts here, but it was later found that they were inhabited, and several of the men were infested with lice. Hospital facilities were only fair. Three American ambulances were assigned to the battery.

From here No. 2 went to Charney, north of Verdun. The garage was fairly protected by a hill, but within easy reach of gunfire from the 77 batteries and well within the gas zone. Masks were worn at the alert. The counterbattery work given us was very weak. The crossroads nearby was a special target and was quite heavily shelled; rarely a day passed that some of the engineer people were not killed. Several of our men were knocked down from the force of the explosion and escaped injury by a very small margin. Only once were the men bothered with gas here. It came floating down with the wind; very soon a lot of coughing began, and masks were ordered worn until all danger was past. The dugouts were in a bank of the Meuse River, and they were also infested with lice.



train No. 2 moved to the forest of Mondon near Luneville, 5 kilometers from the line, and by far the best of all: table, well-camouflaged dugouts were at hand.

3, 4, 5, and staff train were ready and departed from September 14, 15, 16, 17, 1918, and all arrived at Sommesous by September 22, 1918, and were now attached to the Artillery Reserves, First American Army. The garage was in a large rolling plain. The soil was loam, under which there were no sanitary arrangements here, but a force of men immediately put to work to digging latrines and shelter from air raids, a storehouse, and such other buildings as we needed. The garage was also used by French colonial troops, and the sanitary arrangements were crude indeed.

The water here was excellent, being obtained from deep-bored wells which were always free from any suggestion of contamination. The sanitary arrangements were most primitive and far from ideal. The weather here for it was cold and quite disagreeable to bathe from a stream which was open. The Army camp 500 meters away had hot baths, but the men preferred to use buckets rather than fraternize with the Germans. The men acted accordingly.

Trains 3, 4, and 5 left Sommesous for the Verdun front October 1, 1918, and went into position at Apis, 200 meters south of the village of Apis, 5 kilometers north of Verdun. Our position here was well concealed from the enemy, for another battery left that position three days before we arrived. The ground was low and rather wet from heavy rains, and had a tendency to constant softness, due to the close proximity to the Meuse River. One hour after our first three shots the Germans fired with six and all were "good direction" and uncomfortable to the guns, but no one was near, as it was meal time. The position and the immediate locality were shelled every day. There was some air activity, but no bombs were dropped close to the Navy garage.

On the morning of October 28, an enemy shell landed 85 feet back of our position and the following men were injured, and those requiring it were sent to the hospital mentioned above:

- 1.—"Lacerated wound nose," shell "K"; condition favorable.
- 2.—"Contusion scalp," "K" trivial; retained with battery.
- 3.—"Lacerated wound chest," shell "K" trivial; retained with battery.

4.—"Lacerated wound," "K," left thigh, right calf, posterior.

5.—"Lacerated wound," shell "K," right thigh, through Hunter's fracture. The man was seriously shocked from the very beginning and died of an embolus after the ligation of the femoral artery and vein. He was buried in the military cemetery of the hospital at Glorieux, near Verdun, France.

Train 4 moved up to Charny after several days' firing from the front.

On the morning of the armistice all trains returned to the base at Verdun and after getting together all spare material started for home to get ready to return to America.

The men were berthed in a standard box car 36 feet by 8 feet 1½ feet 2½ inches, giving a cubic capacity of 2,016 cubic feet. Subtracting 438.06 cubic feet for displacement of bunks, stove, etc., gives 1,577.94 cubic feet. Dividing by 25, the number of men in a car, we have 63.1 cubic feet per man.

The car is ventilated by eight windows, four doors, and numerous cracks caused by the shrinking of the green lumber used in the construction of the cars. This was the cause of no little discomfort for frequently the bedding was wet from blowing rains. After a lot of urging, three ventilators, 8 inches in diameter, were supplied each car, which greatly relieved the situation. Except in rainy weather the men were ordered to open the doors and windows on the lee side of the cars before retiring. This provision made up in a measure for the poor ventilation, but was a poor substitute for proper ventilation, especially when the weather was cold.

The lighting was by means of kerosene lamps, except in the staff cars, inadequate in number and a general nuisance, for they would not burn when the train was under way, thereby leaving the crew in darkness. Then there were too few lamps to adequately light the cars. How much vitiation resulted from them is not known, for we had no apparatus for testing the  $\text{CO}_2$  content of air. This should be remedied in the next battery with a lighting plant of some type like the Delco. Then adequate lighting would be provided and at less expense than the oil method and a much more sanitary condition be insured, while oil space would be saved from the transportation end.

*Heating—amount, means, defects, remedies.*—Heating was done by a coal stove situated in the center of the car. There was no great complaint from this, for the men of this organization do not complain, but that does not alter the fact that the system is wrong. There was always a hot space in close proximity to the stove and the ends of the cars were cold. This could be remedied by using a plant for each car, as on some of the older types of passenger cars in America. The original cost would be greater, but when coal is as expensive as it is in France the saving would almost pay for the plant in a year's running. The heat would then be carried to all parts of the car by circulation in the hot-water pipes and equally distributed. Cleanliness of living quarters would be promoted by the absence of ashes and coal dust and, by no means least, tonnage would be saved by the reduction of fuel consumed. It is urgently recommended that this be done for the next berthing cars. It is doubtful if steam heating from the engine would be practicable, for the engine might be in use elsewhere when heat was urgently needed. Otherwise that would be the ideal system.

The officers were quartered in the main in the battery headquarters cars. A general description of one such car follows: The commanding officer's room, 9 by 8 by 7 feet 6 inches, with deduction for furnishing, gives an air space of 362 cubic feet. It is suggested that a common sleeping compartment be provided, doing away with the individual rooms and the space-killing bulkheads.

The next compartment, 320.5 cubic feet, housed two junior officers. The dispensary is next and is described elsewhere. The radio room comes next and contains 234 cubic feet, exclusive of bunk displacement. It accommodates two officers. It is ventilated by natural ventilation and heated by the same means. The stove from the dispensary heats that compartment and the one next to it.

The officers' mess room for each train was a compartment approximately 8 feet square, fitted with a folding table, and was fairly comfortable for those not near the stove, but it was extremely incon-

above about in at meal times. It was usually a feat to have a boy serve one and not soil one's uniform.

The headquarters' car contained an office and staterooms for the senior medical officer. The latter rooms were enlarged to enlarge the office, and the toilet in this car was reutilized as a clothes locker for the adjoining rooms. Minus the deduction for displacement as follows:

	Cubic feet.
Stateroom	622.0
Senior officers' room	402.5
and lighting as for staff train.	362.0

The pay officer and executive officer were quartered in those compartments correspond about to a battery headquarters' car with slightly more cubic space in the pay officer's room than in the senior officer's room in a battery headquarters' car. The latter was slightly smaller than that of the executive and commanding officer. There was one other car with rooms the same size as for headquarters' car.

Water that was used for drinking and for cooking was chlorinated to 40 gallons. Each car used for living purposes was provided with a 200-gallon tank, and in these water was stored. The tank was fitted with a valve that permitted steam connection to the car. The water was sterilized when deemed necessary.

The sanitary fittings used in the completed cars were the same as in the various galleys. The water from these was caught in a tank and emptied when necessary into seepage pits provided for the purpose.

The living cars were all originally fitted with portable water. The space occupied was desired for other purposes, so the cars were dispensed with and latrines used instead.

The laundry work for the organization was done in the main by the men themselves, for there was a general scarcity of people with the necessary washing. There were few places where such work could be done for the price was generally out of all reason in comparison with the daily wage. The men used canvas buckets or any other convenient or suitable for the work, and as a whole were satisfied with the arrangement and clean considering the character of the duty.

The supplies required for on the original requisition were in excess of the original complement, but 200 more men were added to the organization necessary to require for additional articles. In the main the supplies were issued by our naval supply depot, and it would not have been necessary to get certain articles from the Army had it not been for the loss of requisitions in the mails.

At St. Nazaire a house 20 by 20 by 14 feet was erected for the dispensary—cubic capacity, 5,600 cubic feet; bunk capacity, 100. It was located on the highest ground in the camp, with natural ventilation—6 windows, 2 doors—lighted by electric light and natural heat, as it was summer time. The dispensary was a one-story building and was partitioned off from the ward by a partition running about halfway to the ceiling. Cubic capacity, 1,000; fitted, heated, lighted, and ventilated as for sick bay.

The sick bay for the train is a standard box car, divided into the following compartments—one ward containing six bunks. In this compartment there is a small linen locker, and on the bulkheads are two bottle racks. The bottles are filled with nonpoisonous medicines. It was recognized that this was not a suitable place for a dispensary or dispensing, but the lack of space prevented a more sensible arrangement. The objection was raised that the fittings and space asked for were not necessary, and no amount of discussion could change the decision made, despite the fact the space was only one-sixty-seventh of the space of the train and in the original plan. Next to this was a small compartment fitted with one of the portable toilets as were all the rest of the cars, and it was found satisfactory. It is believed that this is the only one used of the whole outfit, the space occupied being more desirable than the toilet arrangements.

The next compartment was occupied by the senior medical officer, and has a cubic capacity of 357.8 cubic feet. He intended this compartment as an additional space for the berthing of three men and as a dispensary and was so fitting it out, but plans were changed again.

The next compartment was intended as a commissary storeroom, but since this car was turned over to the medical officer for the medical department, it was converted into an office and poison locker. It has a cubic capacity of 182 cubic feet and is very small, but we managed to do the work in it.

The last room was fitted up as a dressing room, cubic capacity, 446 cubic feet. This space was very small for the purpose, but in comparison with other cars I think that this car was the best of the lot.

Two porcelain washbasins were bought in the open market, and by an ingenious device framed up by Ensign T. J. Leblanc, United States Navy, furnished us with hot and cold running water. The water was stored in old gasoline tins secured to the roof and heated by kerosene lamps directed against a copper coil, which was incased in a nonconducting jacket. This was a splendid arrangement and was very satisfactory, as it took only a few minutes to get plenty of scalding-hot water. The greatest disadvantage was the necessity of draining the tanks at night to prevent freezing, for it was getting quite cold when we left the base for St. Nazaire. The sterilizer was placed in this compartment, as well as a cabinet for dressings. One of the folding mess tables was to have been used as a dressing table, should the occasion arise.

This compartment was ventilated by two ventilators, four windows, and two doors, to say nothing of the numerous cracks caused by the seasoning and slight warping of the new boards.

The lighting was by the standard passenger-car kerosene lamps. Heating was by oil stoves, as was the stateroom of the medical officer, until the tool car arrived, when oil lighting was replaced by electricity generated in the tool car by the dynamo for running the electrically-driven tools. The lighting of the ward was the same as the dressing room, and ventilation was by two ventilators, four windows, and two doors. The heating of the ward was by a coal stove, which was always a nuisance, the car being too hot or too cold, to say nothing of the filth from coal and ashes. The stove was too large for the compartment.

There was no isolation ward after the middle compartment was converted into a stateroom nor was there any venereal prophylaxis

matter was taken on the ground beside the car. No  
e for an isolation ward. Had such a contingency  
ould have been used or cubicle system employed until  
have been sent to a hospital.  
y car was attached to the staff cars and was never  
front, although the medical officer recommended that

*suggestions.*—That more space per man be allowed in future  
and that the cars be of better construction; that they  
n a centrally located plant like those used on some of  
of passenger cars (this would be more economical and  
ory for the proper distribution of heat, preventing a  
the stove and the rest of the car cold); that the train  
a small lighting plant like the Delco type, kerosene  
d in emergency; that a car be provided for water like  
l tank car and connected to a compartment in another  
bathing facilities with hot and cold water (this latter  
o have a clothes-drying room, delousing plant, and a  
room; this additional car can be handled easily, as the  
will be without pits and the necessary construction  
guns are now designed to shoot at high angles from  
t pits); that one sick-bay car or at least adequate sick  
ovided for such purposes for each train and provided  
one isolation bunk and prophylaxis room; that each  
ded with ambulance of dependable make and of at  
cher capacity.

#### ANAL TRANSPORTATION OF ARMY CONTINGENTS.

y and medical performance the transporting of Army  
from Europe by the Navy and the return of its sick  
stands out as one of the brilliant achievements of the  
k was done so well and so quietly that its vital signifi-  
-accomplishment of the purposes in view is patent only  
nking few. It would be an act of gross negligence if  
nalize here the simplicity and modesty as well as the  
se who thus went about their duty in this matter as a  
of obeying orders. There was vigilance and skill on  
re was long training behind the guns, and below in the  
contagious wards there was untiring, patient, loving  
avy doctor and the Navy hospital corpsman worked  
, oblivious of rest and food until physical strength  
ficers and men of all branches went at the task with  
working together with generous rivalry to further the  
movement undertaken by the country. Our medical  
all experienced, but we had enough experienced men  
all the details of military organization afloat and the  
itary problems to train the rest, and their success was  
by the decision of the military leaders to make the  
umbers the paramount issue. In view of all the cir-  
s a matter of wonder to those whose technical knowl-  
hem to appreciate the difficulties in the way, that hun-  
sands of soldiers were carried over and brought back

with thousands of sick and wounded in a uniformly satisfactory manner so far as agencies under our control were concerned. At times, where constructive criticism would have been of invaluable service there was heard only the trivial complaint having its origin in grievances about rank and privilege and not in any lack of the simple essentials of war—food, shelter, safe transportation and reasonable guarantee of health.

The country's unpreparedness for war, and above all for an overseas war, is best illustrated by the formidable situation created by our lack of a merchant marine and by the reduction, due to enemy offensive, in foreign vessels available for charter when our operations began. But ships were found and troops were transported. However, the return of sick and wounded soon became as imperative, even from a military standpoint, as the dispatch abroad of combatant troops since the depleted resources and the individual needs of our allies as well as the wishes of our own people made prolonged hospitalization abroad undesirable. The efforts of the Medical Department of the Army to secure ambulance ships—a minimum of six were requested—and again specific request for three definite ships estimated to accommodate from 500 to 600 beds were without effect as all available vessels were assigned primarily for troop transport eastward. Under the circumstances the only issue out of the difficulty was to economize in ships by having them carry troops eastbound and sick and wounded westbound. Such an arrangement, if evacuation was to be done rapidly, involved manifest prejudice to the sick and wounded, but it was the only way out of the dilemma, and the medical departments of the two services joined hands to remedy existing deficiencies in a spirit of full cooperation for the furtherance of the common cause.

The work of transporting the Army to Europe and back was performed by three types of vessel: (1) Vessels constituting an integral part of the Navy; (2) vessels assigned to the Navy, officered and manned by it and under its control (these made up the Cruiser and Transport Force); (3) chartered foreign vessels of British, Italian, French, and other register. The latter constituted the Army Transport Service, and with it the Navy had nothing to do, so far as administration was concerned, merely furnishing convoy.

To further accelerate the return of troops after the signing of the armistice a number of battleships were assigned to transport service, the usual Navy complement being reduced and minor structural changes made so as to increase available berthing space. There was much doubt on the part of some of the medical officers of the Navy serving on these battleships as to the wisdom, from a sanitary point of view, of utilizing battleships for this purpose, as overcrowding would be inevitable and battleships are poor troopships, at best, due to the large amount of deck space taken up by turrets, guns, magazines, etc., and to the general structure of this type of ship. However, the same pressure which was exerted from the beginning of hostilities to get men abroad now operated to get them back, and the experiment was tried with gratifying success.

Reviewing the Navy transport work as a whole, and more particularly in its medical aspect, I can assure you that it was well done. The guiding principle in all the Navy plans, the first consideration in its administration, has been humanity in its broadest sense. This

safety for the passengers in transit came ahead of other minor comforts and privileges were denied or for-  
 ver these were considered likely to reduce in the slight-  
 efficiency of the service undertaken, or to increase the  
 e sea. As stated in my last annual report, the priva-  
 or discomforts of a crowded troopship were borne by  
 a transit with loyalty and good nature. They realized  
 f their mission on departing; they were eager to reach  
 narking to return. It is an evidence of the good sense  
 ation of the average soldier that he realized, further-  
 at he had to put up with for ten days or a fortnight  
 measurably different from the daily lot of those whose  
 t at sea. Occasionally unreflecting individuals whose  
 sea life was derived wholly from occasional experiences  
 engers on a favorite liner have offered well meant but  
 ticism, but the men who were to do the fighting knew  
 barked for no pleasure trip and their final testimony  
 iversally stamped their association with the Navy and  
 t at its hands as the nearest approach to a pleasurable  
 ring their participation in what was not the holiday of  
 stern endeavor of war.

Preparation of last year's report was begun, very general  
 have been effected and early plans have matured for  
 regulation of many factors in the sanitation of Navy  
 The methods of handling men in respect to their health  
 d steadily as time and experience rendered evident to  
 number of officers and men the necessity for measures  
 appreciated at first by the few. This has been true also  
 ged with the embarkation or evacuation of troops.  
 outine have replaced sporadic and desultory effort.

Attained have justified the administrative methods  
 e medical department of the Navy Transport Service  
 briefly outlined again. Whenever circumstances per-  
 ill advance guard of the contingent to embark came  
 o learn their way about the ship, master the billeting  
 and prepare for the policing of the troop spaces. This  
 ced confusion and delay when the body of the troops  
 and made easier the difficult task of keeping the living

The maintenance of perfect cleanliness of deck spaces  
 d nature to the trained man-of-war's man but it is not  
 ed in the soldier who regards himself as a transient on  
 t best thinks that what obtains ashore in a railway  
 n or on a ferry boat is good enough at sea, a serious

embarkation authorities were expected to send aboard  
 o were clean and free from disease, the Navy under-  
 ver them in similar condition at destination. With the  
 s and the most earnest effort this could not always be

Men in the period of incubation of some infectious  
 nting no symptoms or minimizing and concealing the  
 e signs of sickness through a commendable fortitude  
 to get to the front, constantly got by the examiners at  
 on camps only to start an epidemic in their organiza-  
 s with long periods of incubation such as measles and

mumps necessarily escaped detection ashore unless the available period of observation in the last camp occupied was equally long. These simple facts make clear the fallacy of estimating the health of a troop ship by the incidence of disease in its transient passenger personnel. Attempts have been made, for instance, to attribute an epidemic of mumps among troops at sea to some defect in sanitary provisions aboard, such as defective cleansing of mess gear, regarding the sputum infection as hand-borne. The period required for the development of this disease following infection being from two to three weeks it is obvious that no epidemic originating aboard ship would appear during a 10 to 13 day passage. One of the sanitary details on which the Navy medical personnel laid great stress was the disinfection of troop mess gear. Its importance was emphasized by the distribution of a special bulletin prepared by Capt. C. N. Fiske, Medical Corps, United States Navy, of the staff of the Cruiser and Transport Force; by attention to this point by medical inspectors of Navy transports and by the individual Navy medical officers of ships. The standard equipment of Navy transports included dishwashing containers into which steam could be directed by the mere turning of a valve. It rested with the internal military control of troops to see that the steam was so turned on at the proper time and in the proper manner. Occasionally it was found desirable to put a member of the ship's complement in charge of the dish washing troughs to insure use of steam as directed.

It has been a matter of universal remark and report by medical officers attached to Navy transports that the health of the ship's complement was better than that of the troops, noticeably in relation to epidemic or contagious diseases. Undoubtedly the permanent crews of the ships had somewhat more favorable living conditions—the activity of routine duties, less crowding in sleeping quarters and above all habituation to conditions of ship life. On the other hand the constant necessity for alertness and vigilance, incessant watches, loss of sleep, the confinement aboard ship for weeks and weeks with little respite from routine duties during the period of submarine menace, together with the increased work entailed by the presence of troops aboard tended to lower vitality and increase susceptibility.

Lieut. D. F. Luby, Medical Corps, United States Navy, while serving on the U. S. S. *President Lincoln*, noted in a large proportion of the troops transported, a thin and haggard look not unlike that seen in athletes who have grown stale through overtraining and the pictures he took of large groups of men on deck seemed to lend color to the justice of the comparison. The effect of changed environment and habits, new duties and fairly arduous drill in training camps undoubtedly makes for a temporary lowering of vitality and the "carrier" of disease, the latent and "missed" case of an acute contagion is most prolific of trouble in large assemblages of men. Observation in our own training camps with material of less maturity in age and consequently of greater susceptibility confirms the belief that the majority of our passenger sick were infected ashore. This was manifestly the case during the general prevalence of influenza throughout our own and other belligerent countries.

The table for comparative figures for incidence and mortality of influenza on various types of naval vessels is interesting, but its cor-



ation is extremely difficult and, as always with statistics, show so many anomalies that they can be manipulated more than one hypothesis. It is noteworthy that on battle-living conditions are distinctly less approximated to al life ashore the percentage of Navy complement at- influenza was 16.36 as contrasted with 8.05 on transports,

The incidence was greater on other Navy types but had the highest fatality rate for fighting ships. The ence of influenza was on gunboats, 29 (percentage of attacked), with the lowest fatality rate, 1.8. The case- on transports was 6.43 for troops and 1.5 for Navy

n be legitimately predicated in regard to these figures nnel of the battleships was largely composed of new ing training, the majority of them fresh from camps ed in many ways to the Army recruits on transports. each group had escaped infection in the training camp, ting a degree of immunity. The nonimmune suffered the crowded troop deck and the crowded battleship afforded favorable environment for the most intense ns. On smaller vessels, especially of the gunboat type, ine is often less strenuous and living conditions are less per man is greater, there is more opportunity for out- nce. The greater incidence on certain types of ships ined by the admission to the sick list of more mild or —cases that were colds and not true influenza—where was a pharmacist's mate instead of a medical officer, eling his responsibility and preferring not to attempt e distinctions, but to treat all sick as serious cases and o the list. This would give an apparent larger inci- deaths among the spurious cases would be less.

months of September and October, 1918, the percent- on cruisers and transports was practically the same for d crew, but the case-fatality rate was 6.43 for pas- .5 for crew. The difference may be referred, as ex- to the crowding of troop spaces.

ing is a feature with which the medical officer is con- is not involved in responsibility for it. It is inevit- e unprepared nations suddenly have to participate in nsequences are well known and may be calculated in those who have the conduct of military affairs can strate that in emergencies added loss from disease is defeat in the armed struggle. The essential errors of cally considered, were incidental to haste in overcom- unpreparedness and the necessity of developing a nsive force in the shortest possible time. With these es a large part of the work of our medical officers was atory the deleterious effects on health of policies be- ntrol and they had as usual to make the best of bad er than to plan ideal ones.

ich was fairly common among transported troops, is h like mumps has a long period of development after to 20 days, oftener 14) and the cases on transports

were infected in camp or civilian community prior to embarkation, bringing the seeds of sickness aboard with them.

The handling of contagious cases was one of the trying features of the Navy transport doctor's work. Such cases require isolation in separate compartments, divert to a small group nurses who could minister to a larger one were separation not essential. Special spaces with a maximum of possible ventilation have to be set apart for them and the details of feeding and nursing isolation cases lay a great strain on the medical personnel.

When the devastating influenza epidemic was at its height in this country it was suggested by medical officers of both services that the flow of troops to Europe be temporarily suspended but this period was coincident with that selected in advance for an unusual and concentrated effort to increase our fighting force abroad for definite strategic purposes and the military leaders regarded it as essential that the design be prosecuted with unabated vigor. To those, therefore, whose dear ones died at sea instead of ashore in camp, of this grim malady, may be unhesitatingly given the assurance that these expended lives contributed just as directly to the cause as any that were sacrificed amid actual scenes of battle.<sup>1</sup>

The serious consequences of transporting troops during the height of the influenza epidemic are shown by the following quotation from an official letter of Commander R. G. Heiner, Medical Corps, United States Navy, who in September had been assigned to work as medical liaison officer with the Army. The quotations are furnished as a matter of history.

The recent transport convoy composed of the U. S. S., *President Grant*, *Mongolia*, *Rijndam*, *Antigone*, *Pastores*, *Wilhelmina*, and *Princess Matoika* arrived at St. Nazaire with a large number of cases of influenza of virulent form and with many cases complicated by pneumonia. There was a large percentage of deaths which occurred in those cases which were complicated by pneumonia and among certain other cases where the resistance was low and the toxic effects were so marked that the patients died within a few hours. On the *President Grant*, the senior medical officer in describing the conditions remarked that it was like the pneumonic form of bubonic plague. On boarding the ship at Croisic Bay it was found that the medical officers and hospital corpsmen were exhausted from overwork and that they with the crew and troops were terribly depressed by the existing conditions. There were sick in all the upper troop compartments and in the standees located on the decks; the dead were being embalmed and evidence of sickness and treatment of the sick were everywhere.

On account of the large number of sick transferred ashore the Army hospitals in and near St. Nazaire were crowded to their utmost capacity and it became more than ever necessary to evacuate as many as possible of the cases which were ready to go back to the United States. The number of sick for this convoy during the voyage was about 2,600. The number of dead during the voyage was 246. The number transferred to Army Hospitals at St. Nazaire was at least 1,500. The number of those who died in hospital after transfer was 204, making the total of deaths 450. Army hospitals here were overflowing and there was no space for incoming patients so that it was necessary to evacuate those who were ready to go back to the United States. The senior medical officers and captains of the ships in this convoy volunteered to take care of 2,148 sick and wounded to go back to the United States but the Army on account of bad train service and clerical work could only deliver about 1,400 patients. These 1,400 patients including about 300 insane were dis-

<sup>1</sup> There were 260 officers and 8,873 enlisted men all told when the U. S. S. *Leriathea* left her dock at Hoboken on Sept. 29, 1918. The Army personnel represented 10 different organizations. Before morning, Sept. 30, all sick-bay bunks were filled with sick and by that night 700 cases of influenza had been identified. The number of cases for the voyage was over 2,000 with 91 deaths.

tributed in the proportion in which the ships had facilities and space for their care and Army doctors and attendants were furnished when needed. The patients were well handled and not exposed in spite of the fact that there was a heavy rain falling and they got away without suffering any discomfort. It was necessary to send them.

In spite of the great difficulty of giving adequate treatment to the thousands of cases of influenza that came aboard with and developed among the Army contingents crowded into the troop spaces of our naval transports the results obtained may be considered truly remarkable when compared with those of civilian communities and camps ashore. The following figures furnished by the commander, Cruiser and Transport Force, to the Chief of Naval Operations, December 11, 1918, constitute unimpeachable testimony to the zeal, devotion, and skill of the naval medical officers and hospital corpsmen serving on the transports, and to the wise and prompt measures taken in the face of the epidemic. Out of 129,364 troops transported, 11,385 contracted influenza, 1,040 contracted pneumonia, and 733 died. From this it appears that of the troops transported during the epidemic up to the date of the letter quoted 8.8 per cent suffered with influenza, and the combined case death rate from influenza and pneumonia was 6.43 per cent, an average Army death rate for the individual trips of 5.66 per thousand of troops conveyed. The Navy personnel of these transports, 23,883, yielded 2,123 cases of influenza and 141 pneumonia cases, with 42 deaths, giving a morbidity rate of 8.9 per cent, and case mortality of 1.8 per cent, and a Navy death rate of 1.7 per thousand.

#### CONVERSION OF SHIPS.

The German ships interned in American ports and turned over to the Navy for use as transports in August, 1917, were lacking in practically every feature required for transport service, except the single one of cold storage facilities, and were indescribably filthy. The work of converting them to troop carriers was prodigious, and can only be appreciated by those conversant with the details of daily life at sea. They abounded with vermin, rat nests, rotting linoleum, decaying food, old beer kegs, wet sawdust, fermenting grain, and refuse of every kind. All the iron walls and beams had to be chipped free of rust. Then the spaces had to be washed out, dried, painted, cemented. This work was constantly inspected by a line officer and a medical officer. Then bunks by the thousand had to be installed, and ventilation provided for. Wash rooms, toilets, messing arrangements had to be provided, enlarged, or rearranged, and hospital accommodations installed and fitted with all modern requirements. It is not claimed that ventilation to an adequate degree was obtained; it was only the best that circumstances permitted. Compared, for instance, to the bakery and galley where men toiled day and night to prepare food, or to the engine room where Navy enlisted men worked incessantly during runs, the troop spaces were palatial. On nearly all the transports medical officers reported on the crowded condition of the troop compartments but the complement of the troops assigned was steadily increased in nearly every instance. Fortunately the most heroic efforts were constantly made by the Navy personnel to offset the disadvantages of overcrowding, and each

voyage saw an improvement in living conditions; except during the overwhelming pandemic of influenza there were no serious consequences from the tenement-like conditions of life. Scrupulous and ceaseless attention to every detail of sanitation negated the deleterious effects of overcrowding. The shower baths were not ample, nor were the toilet facilities as abundant as might have been desired, but in view of the time for preparation, the urgency of affairs, the number carried, and considering the results obtained, the Navy Transport Service as a whole was a success. That many of the individual passengers taken to Europe and back should comment on features of transports which did not appeal to them goes without saying, but there is something worse than a week or 10 days' passage on a transport, and that is to live upon one trip after trip, cleaning up after the passengers, repairing plumbing (disarranged by the presence of tin cans and magazines thrust down water-closets), disinfecting decks; to prepare food, care for the sick, embalm the dead, delouse, paint, scrub, police day and night, to stand watch at sea, and work hard while in port month in and month out.

#### SANITARY MEASURES.

On many of our transports, especially during the influenza epidemic, a naval medical officer would take his stand at the gangway as troops filed aboard and watch for the flushed or markedly pale face, the injected eye, or the weary, apathetic manner which betokened sickness. Such cases were given a rapid examination with stethoscope and thermometer and if there were confirmatory evidences of disease they were put ashore. Then a round of the troop spaces would be made and sometimes the total of rejections for the voyage would reach 20 or 30 developed cases, a menace, of course, to the health of their units and to that of the ship's personnel.

On the voyage a formal daily inspection of the troop spaces was the rule, the captain or executive officer of the ship being accompanied by the ship's surgeon, the commanding officer of troops, the senior Army medical officer, etc. Furthermore one of the Navy medical officers was usually designated as the sanitary officer and he made frequent daily visits to all living compartments.

The plan of having sick call for troops held by Army medical officers in one or more compartments and reserving the sick bay proper for serious cases under the regular ship's surgeons worked very well. Minor ailments or injuries were treated at the troop sick call with medical stores supplied by the Navy, so that the Army doctors would not have to break out their own equipment in transit. A serious case would be sent to the sick bay for treatment with a card indicating the tentative diagnosis. This division of labor corresponded to the different status of the two types of medical officers, the Navy men being permanently attached to the ship and familiar with the methods of handling the sick at sea, the Army men being only temporarily connected with the ship and concerned with the health of the whole unit to which they belonged rather than with those likely to be detached and sent to hospital on debarkation. This kept the nursing forces under their respective commands and prevented possibility of friction. The wisdom of this definite, systematic arrangement was amply proved by the results.

On most of our transports printed circulars, prepared in advance, setting forth the plan of work, the division of duties and the details regarding sanitary measures, were distributed to those concerned on embarkation and the senior medical officer held an informal conference with his colleagues of the Army as soon as possible after troops came aboard to secure mutual understanding and harmonious collaboration.

On one of the transports the captain of the ship for his own information and guidance kept a graphic chart of the various compartments and noted on it daily the reports of inspections. Thus an unfavorable report concerning a definite compartment would make it the object of special scrutiny and the basis of recommendations or other appropriate action if such unfavorable comment recurred.

The most trying because the least satisfactory and a wholly thankless feature of the Navy Transport Service was the return of healthy troops when the rush home began after the cessation of active hostilities. It was natural to want to get home and to feel in advance that any safe transportation would be good enough but once embarked there was a tendency on the part of officers to regret the comforts and conveniences which had been eagerly waived in order to secure prompt passage. In July, 1919, one of the swifter vessels was inspected by Army Transportation Service officials and company commanders of casual officers companies in a French port and a troop space having upward of 900 bunks of the trooper type was pronounced by these officials satisfactory as quarters for officers. The ship had reported a capacity of 106 officers as first-class passengers. Though the voyage lasted but 6 days and good weather was experienced the inevitable happened. The officers transported became dissatisfied and complained of the character of their food and of the ship's being dirty. The food was identical with that served to the ship's ward room and the Army provided mess attendants to clean up the compartments occupied, to wash officers' mess gear, etc.

The compartments occupied by these officers were indeed dirty after they had been in possession a short time—the decks littered with remnants of food, tin cans, wrapping paper, etc., following extensive patronage of the canteen or from the wandering at large of pet dogs being brought home by officers. No regard was paid to the sanitary rules or the messing arrangements of the ship.

The incidents of this voyage lead to the following recommendations by the medical officer of the ship:

That the sale of food from the canteen be forbidden to troop passengers; that only dogs for whom kennels are provided be allowed on transports; that officers be carried in troop standees only in proportion to accommodations available for adequate messing such as they will expect when once on board, and that they be organized into companies; that the maintenance of ironclad discipline be exacted by the commanding officers of troops so embarked.

In some cases the large contingents of officers placed aboard returning transports by the Army in excess of accommodations for those of officer rank were required to sign a waiver of rights to special quarters, etc., and from those contingents no complaints were received.

It should be permanently put on record to the credit of the enlisted men, who represented, of course, all classes of society, that with far

more hardship and discomfort to endure they made practically no complaints. They realized that the voyage to Europe and return was but part and parcel of war service and war experience and to be borne with the same fortitude and good humor as the asperities of the march, the trench, and the camp. They did not for a moment anticipate or demand that the transport should vie with accommodations on an ocean liner.

There were inevitably some regrettable features and mistakes in the Navy Transport Service. Some ships were not always as clean as they should have been, but often trip after trip had to be made to land fighters in France before delay could be secured in a home port sufficient to permit of fumigations and disinfections. Whenever the itinerary could be broken or interrupted the necessary remedial measures were invariably put into execution with dispatch.

#### METHODS OF EVACUATION AND INSPECTION.

Commanders Murphy and Heiner, Medical Corps, United States Navy, in their liaison work at Brest and St. Nazaire, were able to be of great service to the evacuation and embarkation authorities of the Army by keeping them informed of incoming vessels and their classified sick-carrying capacity for the return voyage. The whole problem resolved itself into one of proper distribution and assignment, and this was rendered difficult by the fact that the Army authorities often had no more than an hour's advance information from the interior regarding large numbers of sick and wounded routed to them and about to arrive, so that congestion was ever present. The Navy medical liaison officers performed only an auxiliary function and were not intended in any way to regulate embarkation, which continued throughout to be the Army's province.

How vital was the matter of proper distribution may be judged by the fact reported by the commander of the Cruiser and Transport Force in a communication of May 11, 1918, that one of the smallest naval transports, the *Calamares*, arrived at a home port the day before with 19 insane when her allotted capacity had been fixed at 5, while the *Leviathan* was due the day following with a total of 10 Army sick, 1 an insane case, though her capacity was several hundred and her general sick capacity ran into the thousands. This reference to the *Calamares* recalls a misunderstanding characteristic of the errors that creep in during the rush of war work and the multiplicity of administrative details. This ship's facilities for caring for the insane were small and her complement for that class was fixed at five, and on one occasion the captain and medical officers resisted the pressure brought to bear to make them exceed the prescribed number of passengers. It was out of this circumstance that there arose a misapprehension to the effect that only 5 insane were to be carried on any Navy transport, a misapprehension that led to much useless cabled and written correspondence and survived in the minds of some officials almost to the time of this writing. By agreement between yourself and the honorable Secretary of War it was established that the commanding general of the American Expeditionary Forces should determine the number and character of the cases to be sent home and that the character and number of said cases

should not exceed for a given ship the capacity as estimated by the commanding officer through recommendations of his medical officer.

The principle trouble in satisfactory handling of the sick and wounded en route to America was due to the fact that at home the main concern was to get the troops to the front and space definitely arranged for the commodious return of sick and wounded was begrudged as tending to reduce troop space while in the main evacuation ports in France the interest centered in clearing out sick and wounded from the congested hospitals there. In July and August, 1918, the Army estimate of returnable casualties had gone up from the original 5,000 a month to an estimated 30,000 per month if the overseas forces should reach 5,000,000 men. More transports were accordingly procured through the Shipping Board and extensive enlargement of sick spaces on transports was at once initiated. The supervision of the construction work on these ships, preliminary to their assignment to the Navy for operation as arranged by previous agreement between the two services, rested with Army authorities. The matured plans furnished by the Navy for construction or alteration to fit them for the purpose intended were not always carried out. In some cases the location and arrangement of the sick bay was changed and the original space used for some less vital purpose to the disadvantage of the sick.

The following routine was established for the inspecting naval surgeon of Navy transports at Newport News, Va., on lines practically identical with the practice of the inspecting naval surgeon at Hoboken, N. J.

Division surgeon boards all transports as soon as possible after arrival and ascertains the following:

- Number of Army sick and dead.
- Number of Navy sick and dead.
- Number of hospital corpsmen aboard.
- Number of hospital corpsmen available for school.
- Has inspection for vermin been made?
- Has inspection for venereal disease been made?
- Warn regarding venereal disease in Newport News, Va.
- Question sick regarding treatment.
- Are culture tubes required?
- Venereal cases, where infected?
- Has Army General Order No. 51 been received?
- Have Medical Department data been obtained?
- Whether ship has on board bacteriological incubator; steam disinfectant; diet kitchen; dental surgeon; portable dental outfit?
- Requires ships to submit requisition for stores before sailing.
- Blank forms at Newport News available for ships. Send man for them with Form "O" made out.
- Division surgeon arranges for the transfer of Navy sick to hospital, and to do this calls Naval Base 234, and requests that the hospital boat be sent for the Navy sick. This includes marines. If necessary, communicates with Army medical officer at the port and informs him of the number of Army sick on board. Arranges for removal of the dead.
- Inform senior medical officer that "Chief Surgeon, Port of Embarkation," wishes copy of death certificate and service records in case of death among troops.
- Furnishes blank forms for the medical department of the ship when required, also culture media.
- Arranges for the transfer of members of the hospital corps to the training school.
- Consults with senior medical officers as to sanitary conditions and ventilation of their ships.

Forwards (by direction) routine reports and returns, War Diary, Forms F, K, and Monthly Sanitary Report, also to "Chief Surgeon, Port of Embarkation" with special reports of contagious diseases occurring among troops on transports, also Liaison notes.

Literature distributed, e. g., health bulletins and circular letters of the medical department.

Arranges for dental outfits on transports and transfer of dentists when necessary.

If an additional medical officer is required on a transport, call Bureau of Medicine and Surgery and inform.

If stores are urgently required, and stores of another ship are available, transfer same. Notify ship whose stores have been transferred.

In November, 1918, the commander, Cruiser and Transport Force, in a general order adverted to the reported use of unsterilized mess gear, etc., in Army camps supposed to favor spread of influenza, reminding his command of previous instructions in the matter and reiterating these instructions.

#### PRECAUTIONS AGAINST TYPHUS FEVER.

In December, 1918, a special order was promulgated to the Cruiser and Transport Force *re* vermin, as follows:

In order to prevent the introduction of louse-borne disease into the United States and to conform to the practice of other services returning troops the following instructions are published for guidance:

A vermin inspection will be made by medical officers of all personnel on board as soon as possible after departure from European port. The inspection will include a thorough examination of the seams of clothing worn. The vermin inspection will be made by medical officers under the supervision of the senior medical officer in charge.

All troops will be directed to examine their clothing daily for lice. A period of 15 minutes will be set aside daily for such an examination. This examination will be under the supervision of a medical officer. All vermin infestation will be reported to him.

After a period of six days following embarkation, another vermin inspection of all personnel on board will be made by medical officers.

Should a transport carry male civilian passengers the same procedure will be carried out with them as for troops. Female passengers will be instructed to examine their clothing daily and promptly report any vermin infestation to a medical officer.

All cases of head lice will be treated by cropping the hair of the head with hair clipper, followed by a bath.

Pubic lice will be treated by shaving followed by a bath. Clothes lice will be treated by cropping the hair of the head, axillary and pubic regions with a hair clipper, followed by a bath. In all instances a bath will consist of washing with warm water and using soap made as follows:

Boll 1 part of soap chips in 4 parts of water and add 2 parts of kerosene oil or 4 parts of gasoline. This jellies when cold. One part of this soap jelly is added to 4 parts of warm water.

Where clothes lice or "cooties" are found, all clothing will be sterilized. When transports are provided with sterilizers all clothing will be sterilized by exposure to steam for 30 minutes, followed by 10 minutes vacuum. When no sterilizers are provided, the clothing will be placed in a "hot-box" or drying room at 150 F., and exposed for 20 minutes. In no instance should leather material such as shoes, puttees or hats, rubber, celluloid or money be sterilized. If shrinkage of wool material occurs, the sterilizer is not being properly used. The steam should be superheated and under pressure of 15 pounds per square inch.

The medical officer will examine the sleeping quarters each day for vermin, paying particular attention to the cots and blankets.

On arrival in the United States the senior naval medical officer will furnish in writing to the medical debarkation officer who boards the ship at quarantine:

(a) The dates that vermin inspections were made of personnel aboard ship.



(b) Whether daily vermin inspections were made by troops.

(c) The strength of the command by organizations, the number of cases of head lice, body lice and public lice found in each organization and description of treatment employed.

(d) Whether lice were found on examination of coats or blankets.

All transports will be disinfected on the return voyage by washing and spraying the sleeping quarters with chlorinated lime or cresol.

In order that these orders may be carried out, it is necessary that provisions be made for hair clipping, shaving and bathing. Also that one or two hot boxes be provided for those transports that have no sterilizers.

#### EXTRACTS FROM GENERAL ORDERS.

The following random extracts from general orders issued by the commander, Cruiser and Transport Force illustrate the number and variety of details calling for the attention of the medical officers of naval transports.

Disinfection of decks in troop spaces by cresol, by means of an ambulatory container under pressure with hose and nozzle.—October 8, 1917.

All water-closet seats directed to be made of hard wood instead of soft wood.—November 19, 1917.

Increase of wash basins up to 1 for 15 of troops, this work not to interfere with the movements of the vessel.—November 20, 1917.

Educational facilities of a practical character at clinics and at the bedside in hospitals ashore were provided for members of the hospital corps serving on transports and when these vessels were in home ports between voyages they were used to the full by hospital corpsmen to perfect themselves in their duties to the sick. Frequent references to this subject occur in the general orders of the commander, Cruiser and Transport Force beginning as early as November, 1917.

Attempts to clean the kapok pillow-type life preservers and to have them cleaned ashore proved that they could not be cleaned by scrubbing.—December 11, 1917. They got very much soiled in handling with each voyage and later it became the practice to disinfect them with formaldehyde, only a surface cleaning being required.

When the use of radio is permitted the following data will be sent by radio to the commander, Cruiser and Transport Force from all naval transports 24 hours prior to arrival with sick or wounded: (a) Prospective hour of arrival at quarantine or dock. (b) Classification of sick as litter, mobile, contagious, venereal, insane, and tuberculosis cases, Army, Navy, and Marine Corps.—December 24, 1917.

Whenever practicable on completion of a trip when a transport is lying at the Hoboken docks in company with other transports (in order to be expeditiously accomplished fumigation requires the removal of all personnel for 48 hours) a complete fumigation of the ship by the formaldehyde process shall be carried out. During the fumigation life preservers shall be collected and sterilized at the same time. Unrelenting effort must be made to keep the ships clean at all times.—December 29, 1917.

It is directed that when transports arrive at Army piers, port of embarkation, the medical officer of the transport consult with the surgeons, port of embarkation, and arrange to transport such quantities of serum and vaccine as the port surgeon may designate in spaces having an even temperature and with a few degrees above freezing. On arrival of a transport at port of disembarkation transport surgeon will arrange to forward these supplies to destination.—January 19, 1918.

From inspections of and trips made on certain naval transports it is found that many of the difficulties encountered on the first voyages have been met in various ways and with varying success. In order that each ship may have the benefit of experience gained on all other ships and possibly find means for improving its own conditions ships are directed to submit a list of all important problems which have arisen and the solutions found, however imperfect the latter seem to be; consideration of matters of hygiene and sanitation are particularly desired. These will be mimeographed in the flag office and copies sent to each vessel.—February 6, 1918.

The department has directed that Ever Warm Safety Suits be supplied to each naval transport in quantity equal to one-half of 1 per cent of the combined complement including troops assigned; cost \$45 each.—April 16, 1918.

It having been reported that the wounded returning from the other side on naval transports were not always furnished with necessary equipment for comfort and health the Red Cross engaged to supply handkerchiefs, tooth-brushes, underwear, socks, towels, pajamas, etc., as required, and the *Leviathan* on her next departure from New York carried 500 outfits and the *Mongolia* 200.—August 7, 1918.

U. S. S. *Zelandia*: "Due to unavoidable circumstances there was not a sufficient supply of liquid soap on board for our first voyage and it was found that a very satisfactory substitute could be made by boiling one bar of Navy salt water soap in a gallon of water in one of the galley boilers. This mixture remained a liquid when cold and had sufficient body to give satisfactory service. It can be made for 2 cents per pint as against 28 cents per pint for the West Disinfecting Co.'s liquid soap. However, it is not assumed that economy is to be weighed heavily when the few conveniences and comforts that can be afforded the troops are under consideration."—August 12, 1918.

Twenty transports were provided with dental surgeons June 1, 1918; by September 19, 1918, the number had increased to 33. These dental surgeons were available for emergency work for troops in transit. Nineteen transports provided with X-ray machines.—March 12, 1918.

Transports to have scuttle butts and be furnished with nozzles in the proportion of 1 to every 100 men carried.—February 2, 1918.

#### CONVERTED CARGO CARRIERS.

Since January, 1919, ships of cargo-carrying type have been gradually adapted to troop-carrying service with a total capacity of 185,000 passengers for assisting in the return of the balance of the American Expeditionary Forces, their equipment being of standard Navy type and their officers and crews derived from the Navy personnel. With these cargo vessels and 120 transports being built for Army account, to be turned over to the Navy in all respects ready for sea, provision was made for the Navy medical department to handle 15,000 stretcher cases per month—80 per cent of the total.

Twenty per cent of the total accommodation was reserved for handling Navy sick and wounded and the casual sick of crews and troops. The necessary changes of structure were done by the Quartermaster Corps of the Army, and the Medical Department of the Navy had no authority in the matter, acting merely in an advisory capacity. Excellent sick bays were provided capable of caring for 2 per cent of sick in two units well lighted and equipped with separate toilets and baths. Operating rooms were installed. The medical and surgical equipment was supplied by the U. S. Naval Medical Supply Depot. Wherever there was an adequate superstructure it was urged that the sick bay be located there. In the majority of the ships it was situated in one of the upper 'tween deck spaces. The wisdom of insisting on adequate accommodations for the sick has been shown by the numerous emergencies which have arisen and the way in which they were met. In all types of transports, whether a converted passenger or cargo ship, the latrines had to be largely increased. In general 22 inches of seating space were provided for each 30 men. The troughs installed could be improved by having the back wall vertical so as to facilitate cleaning. Where the troughs were of porcelain they proved much more satisfactory than the metal type. The intermittent flushing system was satisfactory when the tanks were sufficiently large and the sanitary pump developed the necessary amount of force. The employment of chemical disinfectants fed by special mechanical devices in latrines is a waste of money. Such devices are at once relied on to take the place of the indispensable flushing and mechanical cleaning and so do harm.

The lavish use of disinfectants about the decks is to be less it merely reinforces the ordinary means of insuring cleanliness. Disinfectants create a false sense of security and take the place of scraping, sweeping, swabbing down with water, painting, etc.

Ventilation of the cargo ships was one of the most important takings connected with their alteration. In some cases the fans were too small to permit the installation of additional and in others the boiler capacity had already been used for other auxiliaries installed. Additional fans were applied whenever it was possible to do so and wind sails were used. The Navy medical inspector attached to the staff of the Transport Force supplied the following data to the ships averaging 10-knot speed: "Each occupant of the deck spaces requires 3 square inches of cowl-discharge; each occupant of lower deck spaces requires 3.4 square inches of discharge to furnish a minimum of 2,000 cubic feet of air per hour." Whenever the large troop compartments were used the ventilation was good, the forward one usually for intake and the after one as an exhaust. Ventilation by fans could be improved if the gratings over them were of iron instead of wood, which would permit of greater strength and less weight in air space. On the converted cargo ships latrines and showers were easily ventilated, as they were located in deck compartments and air ports into the open. The ventilation of passenger ships was attended with much difficulty. The systems were inadequate for the crowded troop spaces, and conduits had to be built, and there was often long delay in getting fans.

The amount of water needed for large troop-carriers is enormous. Five gallons per capita per day was the minimum requirement. The need for all the needs except bathing. Salt-water showers with hot and cold water were provided in the proportion of 1 to each 75 men. This was not popular. The sick bays were supplied with fresh water.

The ration supplied was in general satisfactory, though prepared under conditions of great difficulty. The number of men on the subject is insignificant when it is considered that over 900,000 men and brought back in the year of 2,000,000 and a good many thousand women, the majority of whom expressed themselves as well satisfied.

Dr. J. J. Snyder, Medical Corps, U. S. N., reports that the breakfast ration do not meet with general approval and suggests that a substitute be sought.

The scuttles of a ship constitute one of the most important considerations. It is difficult to devise a type which will be safe and become a menace to health. The plan put into effect by Lieutenant Commander J. A. B. Sinclair, Medical Director, United States Naval Reserve Force, on the U. S. S. *Von Steuben*, with the approval of the commander of the Cruiser and Transport Force. It consisted of attaching guards similar to those used on descent electric lights to prevent actual contact of the hands with the discharge nozzle. Sanitary scuttle butts for the

engine-room force are now regarded as an essential part of the sanitary outfit for a vessel.

The following is the minimum complement of medical officers for transport service, exclusive of those in transit whose services are available, judged by the experience of the Cruiser and Transport Force:

Ship's troop capacity, 2,000 to 3,200, three medical officers; ship's troop capacity, 4,000, four medical officers; and one additional for every 1,000 or fraction of a thousand men transported. There should be an additional medical officer in every case if sick are carried. Ships carrying sick and wounded require hospital corpsmen to the number of  $1\frac{1}{2}$  per cent of troops carried.

#### THE RETURN OF SICK AND WOUNDED.

At a very early stage of the war arose the problem of how to return the sick and wounded to America. The ideal solution would have been for the Army to return its casualties in ambulance ships owned, manned, and equipped by its medical department and convoyed by the Navy. This was impossible, and the next measure considered was the use of the Navy hospital ship *Solace*, with its capacity for returning 200 casualties a month, and the use later of two other hospital ships in process of equipment able to bring back 300 sick apiece per month. The Army's estimate of a minimum of 5,000 returnable casualties per month showed these resources to be utterly inadequate even had these three vessels not been required for their original and legitimate purpose of caring for the Navy sick. Out of this situation developed the arrangement by which all Navy transports would, on the westward passage, serve to the limit of capacity for the return of Army sick and wounded, and a schedule of each ship's carrying capacity was forthwith gotten up and generally promulgated for the guidance of all concerned. This proved the best arrangement possible under the circumstances and was entirely satisfactory whenever the limit of a given ship's capacity was not exceeded. Unfortunately it was not always sufficiently clear that the complement of a troop ship bound east by no means corresponded to its capacity for adequate care of returning sick and wounded. The pressure at evacuation centers in France was, of course, enormous and it extended to ports of embarkation, but the Navy took the position from the start that what was good enough for healthy men being rushed to the front was by no means sufficient for the maimed and sick who had done their bit and were entitled to the best possible care and professional attention the moment their retrograde movement began. To subject the sick to the overcrowding of troop compartments for a 10-day voyage was to jeopardize their chances of recovery. The troop quarters, with their three and four tiers of standee bunks, on iron decks remote from mess room, toilet, and open air recreation were absolutely out of the question for the lame and disabled, the bedridden, the surgical cases requiring one or many daily dressings and, of course, during the period of the submarine menace common humanity demanded that the number of totally disabled and helpless passengers be not out of proportion to the facilities for carrying them to and caring for them in rafts and lifeboats should "abandon ship" be necessary. The captain of the ship and the senior naval medical officer were judged

Department to have sufficient appreciation of the need of evacuation, combined with a practical knowledge of conditions, to determine not the maximum carrying power but the number of facilities approximating the required hospital facilities for sick and wounded on each ship. The much talked of "chevaux 8" car was not esteemed an appropriate means of transport rearward for the disabled ashore, and it was not proposed to render them an analogous service on a 10-day voyage on the

It was not only a question of attendant personnel, the whole matter has been much simplified, but the humane treatment of the casualties included a variety of other considerations. There was no question of the number of attendants that could work in confined quarters without falling over each other, especially when the ship was in the submarine zone. The proper handling of contagious diseases, the tuberculous, the insane, involved nice adaptation of special requirements to available space and facilities. The representatives of the bureaus concerned, beginning November, 1917, were drawing up of a formal agreement by which the Navy would handle all sick and wounded for which it could provide space, *the prime basis of adequate treatment*, on troopships of the Navy, and to furnish the services of its three hospital ships of its own needs only.

A joint report of February 7, 1918, to you, the Surgeons General, showed that the two services agreed that the Navy hospital ships were unavailable for Army purposes as sick transports, their capacity being small and their services completely utilized on the units of the fleet. The Navy transports were agreed to be the best available means of returning Army sick and the number to be carried being limited to available space. Army sick and the sick of the troops in transit had been handled by the Navy. There was also a joint recommendation for the purveyance ships, of 500 or more capacity, for Army use.

On January 22, 1918, to the honorable Secretary of War was assigned to Army use the facilities for handling Army sick and returning to the United States available on Navy transports in service and of others that might be subsequently obtained. The two Navy hospital ships *Comfort* and *Mercy* were to be used when the services of these vessels could be spared from other duty. It was stated that no increase in facilities for this purpose was contemplated by the Navy, but that, should the Army find these provisions insufficient, naval personnel would be procured to man and operate such vessels as the Army might procure. The substance of this letter was reiterated in your letter of January 25 and in your letter of February 15 to the honorable Secretary of War. He clearly pointed out that the Navy would man and operate the number of hospital ships provided by the Army, said to be ready in all respects for occupation.

The agreement was approved by yourself and the Secretary of War, March 28, 1918:

That the sick and wounded being brought from France or the United States will be brought in Naval hospital ships, whichever may be most suitable and available, except

in special cases where transportation by commercial liners may be authorized.

(b) The Army will be in charge of the embarkation and disembarkation of all Army patients.

(c) The Navy will be charged with the care of these patients while on board ships of the Navy acting as transports or otherwise.

(d) At the request of the Navy, the Army will render such assistance in personnel and matériel as may be necessary.

The following schedule shows the classified sick-carrying capacity of the great majority of the transports in service on December 1, 1918. The figures fluctuated more or less with alterations in internal structural details made for better ventilation or other sanitary considerations. On some transports increased passenger service went hand in hand with improved disposition of living spaces; in others, it was reduced. In every case, the numbers of different types that could be treated with gratifying results depended absolutely on the type and general structure of the ship which, in the main, was fixed and not susceptible of modification.

*Revised table for rated capacity for troops invalided home Sept. 5, 1918, on principal naval transports.*

Name of ship.	Total bed- ridden in sick-bay bunks.	Able to walk, re- quiring surgical dressings; in troop standees.	Mental cases.	Tubercu- losis, in isolation or on open decks.	Able to walk, re- quiring no atten- tion; in rooms for officers.	Convales- cent, requir- ing no spe- cial atten- tion; in troop standees.
Aeolus	24	100	10	30	145	2,500
Agamemnon	38	130	20	60	230	3,000
America	59	140	12	25	215	3,600
Antigone	40	110	5	25	100	1,600
Calamare	42	100	5	20	80	1,100
De Kalb	12	150		20	50	1,000
Finland	40	200	6	30	150	3,300
George Washington	60	500	8	50	500	4,000
Great Northern	40	400	45	38	116	2,200
Hancock	20	550	3		40	170
Harrisburg	38	200	5	25	100	2,200
Henderson	50	350	8	16	64	1,100
Huron	38	110	5	25	140	2,200
Konigen der Nederlanden	24	300	2	30	80	1,300
Kroonland	40	200	16	20	150	2,600
Leviathan	100	1,000	360	55	400	1,000
Lenap	20	100		10	44	1,000
Louisville	45	300	5	30	100	1,800
Madawaska	40	100	5	25	105	1,700
Mallory	20	100		10	40	1,200
Manchuria	38	300	22	40	175	2,800
Martha Washington	50	150	25	30	100	2,200
Matsonia	16	100	5	10	90	2,000
Maul	30	100	5	10	100	2,000
Mercury	44	110	20	25	120	2,300
Mongolia	33	300	5	25	170	2,800
Mount Vernon	40	130	25	25	140	1,800
Northern Pacific	44	510	45	90	120	1,700
Orizaba	40	500		25	90	2,600
Pastores	25	100		15	50	1,000
Plattsburg	38	200	10	45	100	2,000
Pocahontas	38	120	5	25	130	2,100
Powhatan	40	300	10	25-150	57	1,400
President Grant	55	110	5	25	200	4,400
Princess Matoka	35	150	5	16	150	3,000
Rijndam	50	1,000	10	40	155	1,800
Siboney	50	500		25	90	2,600
Sierra	30	200	5	25	100	1,700
St. Paul <sup>1</sup>						
Susquehanna	45	130	5	25	105	1,700
Tenadores	40	100	3	20	42	1,100
Von Steuben		200		60	103	1,400
Wilhelmina	20	100	5	10	100	1,700
Zeelandia	27	500	5	30	76	1,700

<sup>1</sup> Hammock.<sup>2</sup> Data not yet available.<sup>3</sup> Cot.

# DETAILS OF EVACUATION.

In August the demand for return of sick and wounded States at the hands of embarkation officials in France pressure was constantly exerted on commanding officers to send their allotted complement of sick, notably in the *Kronland*, *Finland* and *Calamares*. But whenever the congested embarkation areas and for the sufferers the better of the judgment of ships' officers and induced to send the allotted complements the resulting overcrowding and complaint about overcrowding in transit. The suggestions came from various quarters that a ship be modified in order to bring back insane only in large numbers. These suggestions were in view only the *evacuation* from France of this unsound element. They did not extend to a practical consideration of what would be cared for en masse amid the discomforts and inefficiency of life at sea and the extremely small chance they would survive in the event of attack or disaster to such a ship. It was appreciated by those unfamiliar with the sea that in the event of danger from enemy or stress of weather the presence on board of hundreds of insane would jeopardize the safety of a ship and its crew.

The officers and hospital corpsmen of the Navy Transport Service have the greatest credit for their faithfulness and skill in making ocean crossings with their sanitary work on the out-ward and homeward hospital work on the homeward bound voyage—and the constant alterations, improvements, constantly going on during the voyage and at home ports. This credit has been accorded them by the Navy Department for the ability of the men to whom they ministered and the only criticism of the medical aspect of the Navy transport service has been that more patients were assigned them than regulations warranted. Many men were put aboard unfit or unprepared for the strain of the misleading diagnoses.

In September, 1918, it was necessary to specify, and in repeating the request, that at least three hours before sick and wounded from the United States were sent alongside the transport, the ship should be furnished with quadruplicate lists separate for each compartment, showing sources of patients, their rank, regiment, organization, and diagnosis. Our internal organization had long been so perfected that when once this additional information was regularly supplied the walking patients would be moved from the compartments, the sick to wards, the bedridden carried out at a moment's delay and by the time the ship was well out of harbor, litters were beside each bedridden case with men to attend them and provision had been made for instructions in the event of any emergency that might arise requiring "abandon ship." The system and order in the evacuation of the sick and wounded developed all along the line some of the overwhelming difficulties were lightened and at the same time a better service was made possible. After the armistice was signed liaison between the two services was so perfected that some of the early and hasty evacuations from shore to ship have since been found to be unnecessary. It was no longer possible to find one transport returning empty while a vastly larger one sailed practically empty.

from a near-by port. Much of the dissatisfaction with the carrying (adequate caring) capacity of our transports was felt ashore and grew out of methods of coastward routing and distribution of invalid cases in France. This waned as an orderly distribution was evolved based on proper advance information of ships' arrivals and the accommodations they afforded.

In transporting the insane our medical officers had to follow the rule of holding to the diagnosis furnished by the medical attendant who had had the cases under observation and study in camps and hospitals ashore prior to embarkation. Every medical man knows the plausible speech and docile behavior which the most dangerous maniac may assume for even long periods only to break out in his true light when suspicion has been allayed. The overworked transport surgeon was not in a position to undertake the cure of the insane on an ocean voyage, nor had he the time, even if he pretended to the special skill required, to go into the niceties of differential diagnosis. When patients were no longer sent aboard indiscriminately an hour before sailing without papers, descriptive lists, or diagnosis, but carefully tagged and sorted as surgical, medical, ambulant or bedridden, contagious, nervous, and insane, etc., it was his duty to see that the insane were humanely treated and humanity here consisted in preventing their jumping overboard or falling down the engine-room hatch, running amuck about the ship, incommoding other patients—in a word, in restraining them and delivering them alive in America. The bulk of the transports were provided with areas inclosed by metal screens, having access to air and light on deck, with a sentry to keep away the thoughtless or inquisitive and attendants on watch day and night, every sanitary detail being observed in regard to these unfortunates. Passengers who saw unkindness in this restraint or declined to accept the diagnosis made by the Army surgeons conversant with the cases before embarkation were not prepared to accept the responsibility for a different procedure nor could they relieve the ship's surgeon of his. In some cases groups of insane were put aboard our transports under the care of medical officers and attendants detailed for the voyage from the service to which they belonged, and under these circumstances those officers and attendants quartered and handled their charges as they saw fit without the advice or interference of the ship's authorities.

During the most active period of our military campaign the heaviest work of our medical officers on transports flowed from the requirement of surgical cases, many of whom required three or four changes of dressing daily; the most trying work was that of ministering to men sent home to die, a certain proportion of whom, of course, expired within a day or two of sailing.

Sixteen battleships have brought back 89,900 and odd officers and men, and 10 cruisers have returned 72,800 officers and men. As our battleships and cruisers are normally provided with facilities for caring for the sick of their crews, estimated at not over 3 per cent for a force of from 600 to 1,000 men on each of these vessels, they were manifestly not adapted in any way nor used for the repatriation of sick and wounded.

Upon the signing of the armistice and with the initial movement for the return of our troops from abroad, steps were taken to utilize certain German ships which had been unable to go to sea



owing to the preponderance of allied naval power, and were still in German harbors. One of the best of this class was the *Imperator*, which was rapidly converted for transport purposes, and like the rest was manned by a Navy crew composed in the main of officers and men already abroad and no longer required for campaigning. Other vessels of this category were the *Graf Waldersee*, *Cap Finisterre*, *Kaiserine Augusta Victoria*, *Mobile*, *Patricia*, *Philippines*, *Pretoria*, *Prince Frederick Wilhelm*, *Zeppelin*.

Statistics of sick and wounded brought home on vessels of Naval Cruiser and Transport Force, January 1 to July 1, 1919.

## ARMY.

Date.	Mobile.	Stretcher.	G. U.	Insane.	Tuber- culosis.	Conta- gious.	Died.
1919.							
January.....	15,520	2,054	66	382	303	158	9
February.....	13,019	1,020	70	421	292	470	31
March.....	19,203	2,331	90	796	533	750	38
April.....	15,113	1,902	60	645	754	389	12
May.....	14,961	1,019	78	1,226	600	231	18
June.....	10,921	910	207	506	221	91	12
Total.....	88,787	9,236	571	3,976	2,708	2,089	120

## NAVY.

Date.	Mobile.	Stretcher.	G. U.	Insane.	Tuber- culosis.	Conta- gious.	Died.
1919.							
January.....	773	86	67	9	17	4	6
February.....	190	40	109	3	6	27	4
March.....	188	47	82	5	12	24	4
April.....	138	53	50	4	11	38	4
May.....	169	37	72	5	4	15	2
June.....	132	30	37	6	12	4	1
Total.....	1,590	293	417	32	52	112	17

## MARINE CORPS.

Date.	Mobile.	Stretcher.	G. U.	Insane.	Tuber- culosis.	Conta- gious.	Died.	Total.
1919.								
January.....	139	14	3	5	2	.....	.....	19,611
February.....	235	8	2	2	2	.....	.....	15,953
March.....	560	51	3	13	9	8	.....	24,748
April.....	381	42	.....	14	6	1	.....	19,646
May.....	312	18	.....	17	9	25	.....	18,818
June.....	239	9	3	10	4	.....	.....	13,355
Total.....	1,866	142	11	61	32	34	.....	112,131

The following extracts from annual sanitary or special reports made by senior naval surgeons of naval transports are appended as furnishing vivid first-hand pictures of the conditions that prevailed, the difficulties that presented themselves, and the measures taken to surmount them.

## REPORTS FROM INDIVIDUAL TRANSPORTS.

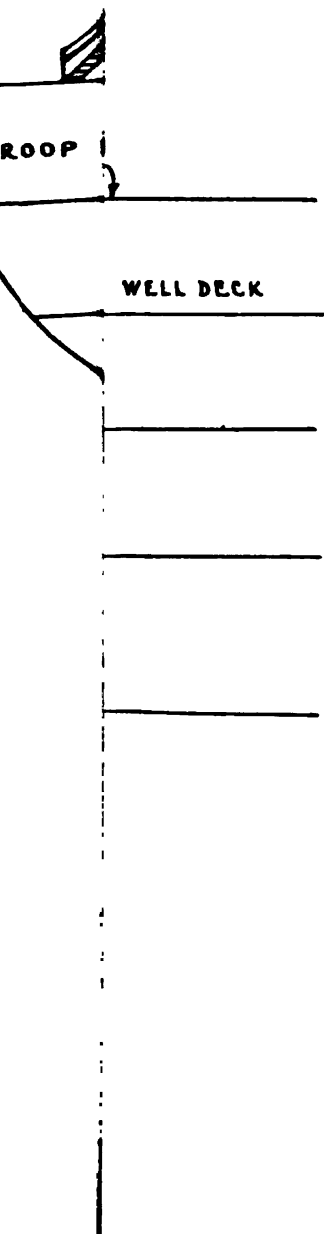
*U. S. S. Aeolus*.—The general health of the Navy crew for the entire year has been most excellent, which is remarkable under the war conditions that existed. It is believed that the morale of the officers and crew would be higher if a change were made after one

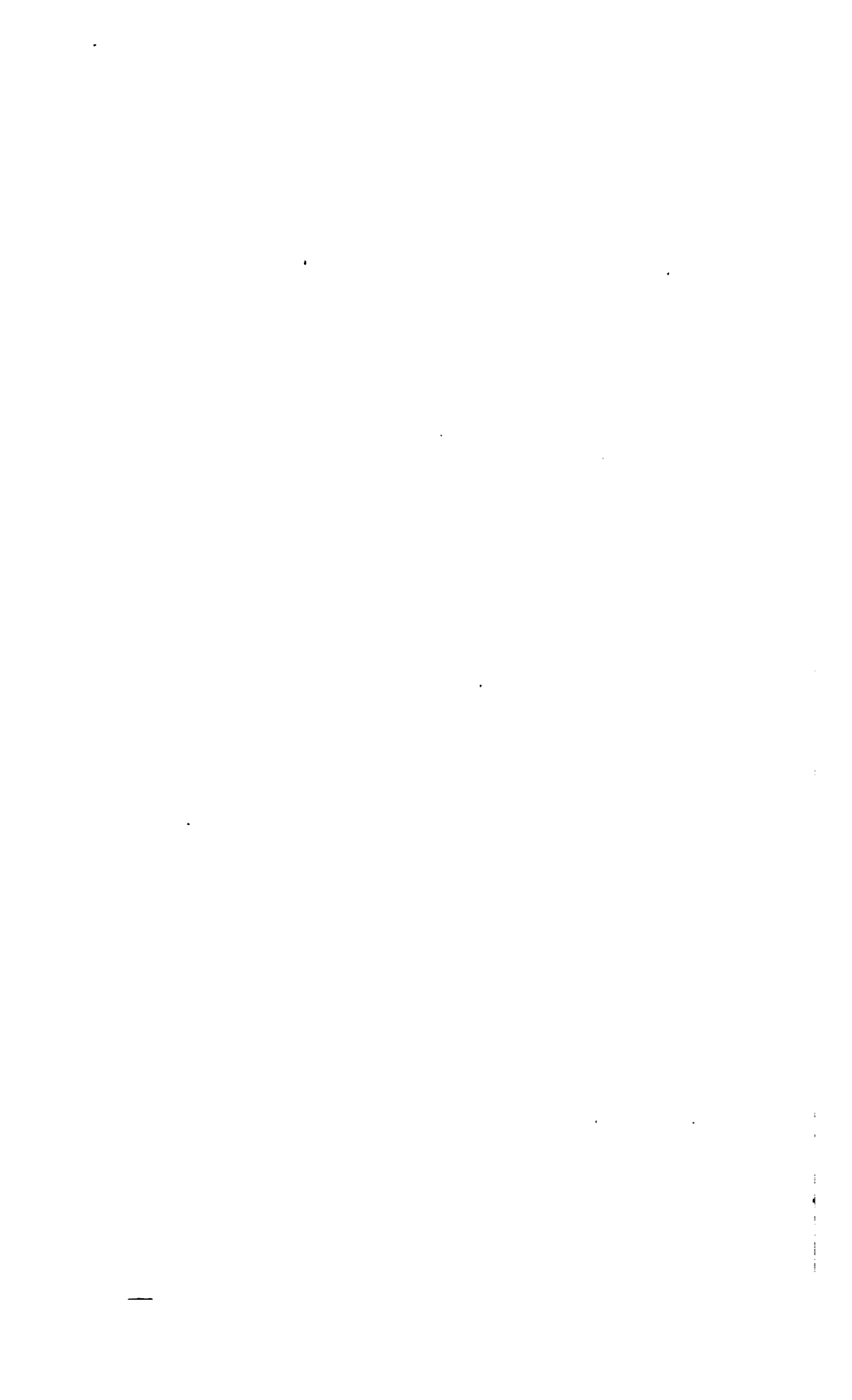
year's service in transport duty. The strain upon both officers and men has been quite sufficient for any normal being and yet they have been kept on this duty constantly since the beginning of port activities, a period, for this ship, of over seventeen months. Officers and men of the Army to the number of 32,682 were transported overseas during the year and 3,440 officers and men of the Navy, both sick and wounded, were returned. The only serious epidemic, one of pneumonia, occurred in the regiment of the Fifteenth United States Cavalry in March, 1918. There were 36 cases and 6 deaths. This was one of the finest regiments of the service from a professional standpoint, but the men were recent arrivals from tropical climates in the Philippines and were embarked at a very bad time of the year. The weather had been unusually inclement and the disease was prevalent about the camps where they were stationed and about the port of embarkation. Excellent results were obtained from the cases in swinging cots in the open air on the promenade. The entire personnel of the medical department of the ship received the highest praise for the efficient manner in which this emergency was met. This ship was quite fortunate in escaping the epidemic influenza that was so disastrous to the troops during October, November, and December. It is the opinion of the writer that the constant daily spraying of the nose and throat of each man with "antiseptic spray" was most valuable in limiting the number of the usual communicable diseases of the respiratory tract so prevalent in the summer and winter. During the last return voyage there occurred two cases of diphtheria among the sick and wounded. Prompt isolation of contacts and a rigid quarantine of all other occupants of the ship's rooms where the cases occurred prevented what might have been a very serious epidemic. There are no facilities for adequately managing such a serious epidemic under the present system of filling the ship to its fullest capacity. The after gun crew's quarters were used to isolate these 2 cases and the 17 contacts. It was most fortunate that these quarters were available.

No. 1  
No. 2  
No. 3  
No. 4

It was found necessary to increase considerably the space originally allotted to the medical department of the ship. A dental and diet kitchen, a surgical dressing room, a padded cell, an X-ray store room, a steam disinfectant and additional isolation ward have been installed. In spite of these additions the medical department has been greatly strained to handle adequately the enormous number of sick and wounded that are being transported at the present time. A special ward for tuberculosis cases and a larger diet kitchen are urgently needed and have been requested.

The work of the surgical dressings has been unusually large, but has been met very efficiently. The wounded cases especially in the tropics have been very much during their sojourn on the ship. It is believed that this is due largely to their increased morale incident upon their departure at the thought of coming home. The Army authorities have been requested to enforce abroad the present order for the efficient dressing of all men before embarkation. This is vitally important in view of the stringent regulations at the port of debarkation at home. This procedure of delousing is considered lightly by the Army. The commanding officer of the troops on the last return voyage remarked, "We know we are lousy, everybody knows we are lousy. It can not be helped." About 50 per cent of the troops on the

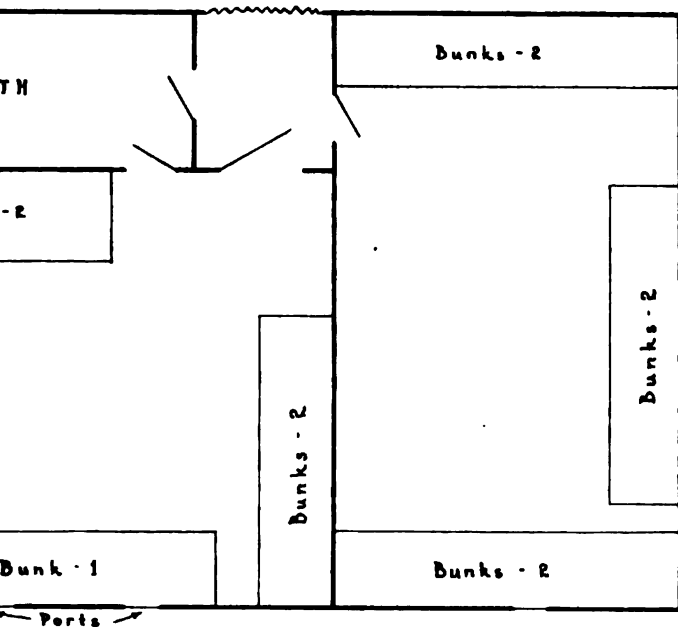




ge harbored lice according to the opinion of some of the al officers who conducted the necessary examination prior on.

*Agamemnon*.—A small laboratory has been established m on A-deck, adjacent to the dressing room and it ma-eases our diagnostic measures. Another space adjacent has been fitted up as an eye, ear, nose and throat office,

### P A S S A G E



### QUARTERS FOR INSANE

Total Capacity - 13

### U. S. S. AGAMEMNON

Second Deck  
Portside Amid.

equipped. Another space made out of 7 staterooms and 6 bunks has been used as a dormitory for the hospital. This space can be utilized as additional sick space in case of emergency. Early in the year natural ventilation was the only method available for all sick spaces and when ports had to be closed a light proof shield was adopted outside of the ports to prevent some ventilation, and in July an entire system was installed thus improving the sanitation of the entire ship. Both the quality and quantity of the rations has been highly satisfactory.

The preparation of the food is carried out in the ship's galleys which are situated on the third deck amidships. The galleys are spacious and well equipped and many new appliances of American manufacture have been installed to replace the older German ones. The messing of both the crew and the troops is carried out on the cafeteria system which has worked admirably and is highly recommended. Stores and facilities for carrying same are ample. The refrigerating and cold storage rooms have also been highly satisfactory. The wind-proof and storm clothes for lookouts and gun crews have undoubtedly contributed much to the comfort and health of the men. The wristlets, sweaters and socks, and other garments contributed by the Red Cross have proved of much value.

As a troop carrier, the ship has proved a great success, the sanitation of the entire vessel at all times has been the keynote of the medical department. The general system adopted on all the east-bound trips has been the establishment of a sanitary squad consisting of 21 men, obtained usually from among hospital corpsmen of the Army. This squad under the direction of a Navy medical officer whose duties were purely of a sanitary nature, went over the entire ship with sprays of crenoleum  $\frac{1}{4}$  per cent solution following the cleaning details, each compartment having its own detail, whose duty it was to clean all compartments immediately after the troops evacuated them. The sanitary officer submitted daily to the senior medical officer a report in writing regarding any defects found in either the cleaning, ventilating system or latrines, etc., and the necessary remedy was immediately applied.

The bathing facilities for both officers and men have been ample, there being 47 salt-water showers available for the men which were used freely. In order to relieve congestion during the summer months when 50 per cent additional troops were carried, a space on the boat deck was selected and by means of a hose a large number of the troops were bathed daily at this space, combining recreation and sport at the same time. Strict adherence to sanitary regulations was undoubtedly responsible for the low sick list and low mortality. When in the summer months the stress of carrying 50 per cent additional troops was thrown upon the ship, the sanitary problem naturally became greater, but after carefully studying various plans and schemes, the feat was accomplished with the most satisfying results. The first trip under this increased personnel order was made in May and 5,000 troops were carried, the sanitation being maintained by doubling the work of the cleaning and sanitary squads who were to spray and clean the compartments between sleeping periods. The doubling up of the troops was arranged as follows: All troops were divided into two watches, known as day and night sleepers, the sleeping hours being from 9 p. m. to 5 a. m. and from 9 a. m. to 5 p. m. This left two daily periods of four hours each, 5 to 9 a. m. and 5 to 9 p. m., during which all troop compartments were thoroughly cleaned and sprayed while the troops were at their parades on deck for drill. In all the ship has made 10 round trips this year. It has carried 32,089 troops to France, with an average percentage of sick of 1.04 including the influenza epidemic and with a total of 13 deaths for the year.

*U. S. S. Alaskan.*—This ship was converted from cargo to transport use at the end of 1918 and the beginning of 1919 under the

Army authorities. Originally intended to carry 2,260 necessary to reduce the number to 2,100, owing to faulty effective workmanship. In March, during a period of over, 250 standee bunks collapsed owing to defective upper, but fortunately without serious results. Ventilation with all hands in their bunks at night, so long as port was open. In rough weather with everything closed, and sick, the ventilation was bad in troop compartments. Army and Army officers' quarters were well ventilated by

at which it was proposed to have the men eat collapsed drift with the first rough weather. One hundred and six bunks swing over the mess tables. The tables were crowded by the feet of men climbing into their hammocks, and men swinging in them were seasick, the results were disease hammocks were removed. The tables were rebuilt and wash troughs provided. By a cafeteria 100 meals a day were served quickly and well.

Army officers and troops were loud in their praise of the detail has been the subject of much favorable comments found possible to carry ice cream and milk for the

was installed for Army officers in transit to the number contained three wash basins, two toilets, and a shower. Troops had one basin for every 32 men; one hot salt-water bath 60; 1 latrine space for every 34. They were required to bathe at least twice during the 12-day voyage. Abundance of soap was available at all times.

America.—The general health of the naval personnel has been, being considerably higher than that of the Army reported. Only one severe epidemic has occurred on board, nearly every trip there have been a few cases of measles, 8 or 10 cases of mumps, and rarely a case of diphtheria and scarlet fever. Special precautions have been taken to prevent the occurrence and spread of epidemics which would work to the disadvantage of many troops on board. The only severe epidemic occurred on the last trip of this ship and was one of influenza. The influenza undoubtedly brought and spread on board by the troops, had been in Boston for 10 days during the raging of the epidemic, but at the time of the embarking of the troops there were only one or two mild cases in isolation. The entire naval personnel were given daily nasal and throat sprays of dichloramine-T twice during the coming of the troops came the influenza. During the trip there were 997 cases of influenza and pneumonia among the troops and 56 cases of influenza and pneumonia among the crew. There were 53 Army deaths and two Navy deaths. During the trip of the calendar year there was a minor epidemic in which there were 137 cases of mumps and 28 cases of measles with 10 deaths.

Three tiers high, capable of providing for 4,000 men were installed in the troop compartments. In September alterations were made in the standees equipped with four tiers of folding bunks capable of accommodating about 5,500 men were installed. This arrangement was somewhat unsatisfactory and prevents proper cleaning of the

The preparation of the food is carried out in the ship's galley, which is situated on the third deck amidships. The galley is well equipped and many new appliances of modern construction have been installed to replace the older German equipment of both the crew and the troops is carried in a special system which has worked admirably and efficiently. Stores and facilities for carrying same are carried in and cold storage rooms have also been installed. Wind-proof and storm clothes for the troops have undoubtedly contributed much to the comfort of the troops. The wristlets, sweaters and socks, which were supplied by the Red Cross have proved of much value.

As a troop carrier, the ship's transportation of the entire vessel at the medical department. The bound trips has been the of 21 men, obtained us Army. This squad whose duties were r ship with sprays

the senior medical officer's office to the space is not exactly suitable, but is the best that can be obtained. One of the masts runs through the center of the ship, and there is no ventilation except through the doors and the discharges. Light is entirely artificial; steam heat is supplied. The operating room and dental office are located on A-deck connected by a transom with the auxiliary sick bay. Both are very well equipped. The operating room is able to use natural light while the operating room is heated by electric artificial light. The dental office is heated by electric artificial light. The operating room has two or three transoms, but though the dental office has no transom above it for ventilation. A quiet room has been added on the port side of the auxiliary sick bay on A-deck. This is used in case a patient is very ill and about to die, so as not to depress the spirits of the other patients, as would happen if the death occurred in the wards. It is also equipped with a folding table on which post-mortem examinations are made and the dead embalmed. There are two isolation wards on A-deck connected with a bathroom and toilet. Each room has three standees of two tiers each. Three isolation wards have been constructed on B-deck. Each has six folding bunks in it and opens on the open deck. Each has a wash basin with running water and a toilet seat. They are heated by electricity. All B-deck aft, formerly occupied by junior officers, has been given to the medical department. This is divided into four spaces of 20 bunks each in three tiers, and one space of nine bunks in tiers of three. Bathing and toilet facilities are most convenient to all these spaces. These compartments are intended for wounded or insane. They are well lighted naturally and artificially, and well heated. The surgeon's examining room and library is connected with the sick bay, and is just forward of the dressing station. Sick call is held here twice a day. The venereal prophylactic and treatment station is on the port side of B-deck forward of the sick bay. It contains a trough and two basins, and is well equipped. There is one small locker for dirty linen, a clean-linen locker, and two storerooms for medical property,



being used for medicines, and the larger one for other surgical supplies and apparatus. A large steam sterilizer called on A-deck, and is used in sterilizing linen and contagious diseases and in delousing clothes for return-

annual report the deck watches for medical officers continued, although the pharmacist and dental officer to do that duty, but since the signing of the doubtless be discontinued.

es.—Between October 1, 1918, and August 28, and 51,560 miles and transported 18,336 troops without a death on board.

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of the personnel has been excellent; average comple- average percentage of sick, 2.5. Measles and mumps in sailors brought from San Francisco, sick and wounded resident *Lincoln*, and wounded marines returned from mainly responsible for this high percentage. The living e found to be somewhat crowded, so additional space to the engineer's quarters with an enlarged ventilating a section of the troop space was bulkheaded off for the on, with various other minor changes, all of which has tisfactory results and contentment to the crew.

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decks, for the lowest tier, although triced up, has its stationary side within a few inches of the deck. Certain of the crew's spaces are filled with standees, and this leads to overcrowding. Hammocks are more conducive to good health. The engineers' force occupy folding bunks three tiers high. The sick bay had stationary standees, two tiers high, while the auxiliary sick bay had folding bunks three tiers high. Since the last annual sanitary report many alterations have been made in the medical department equipment. The space between the sick bay on B-deck and a small auxiliary sick bay on A-deck which are connected by the main companion has been closed in giving more room to the space on A-deck for additional bunks and lockers. The main sick bay has 46 bunks in two-tier standees. The auxiliary sick bay on A-deck has 20 bunks in two and three-tier standees. A dressing room has been installed on B-deck for all dressings and minor surgical operations. It is well equipped and accessible to the sick bay and open deck. A dark room is now in use for eye, ear, nose, and throat examinations. Ventilation of the sick bay is by means of ports, transoms, and supply. Connected with the sick bay is a bathroom with three toilet seats, two wash basins, and a bath and showers. Lockers are provided for each patient. The dispensary has been moved from the senior medical officer's office to abaft the sick bay. The space is not exactly suitable, but is the best that could be obtained. One of the masts runs through the center of it; there is no ventilation except through the doors and the dispensing window; light is entirely artificial; steam heat is supplied. The operating room and dental office are located on A-deck connecting with the auxiliary sick bay. Both are very well equipped. The dental officer is able to use natural light while the operating room has accessory artificial light. The dental office is heated by electric heaters, and the operating room by steam. Each space has two or three ports, though the dental office has no transom above it for ventilation. A quiet room has been added on the port side of the auxiliary sick bay on A-deck. This is used in case a patient is very ill and about to die, so as not to depress the spirits of the other patients, as would happen if the death occurred in the wards. It is also equipped with a folding table on which post-mortem examinations are made and the dead embalmed. There are two isolation wards on A-deck connected with a bathroom and toilet. Each room has three standees of two tiers each. Three isolation wards have been constructed on B-deck. Each has six folding bunks in it and opens on the open deck. Each has a wash basin with running water and a toilet seat. They are heated by electricity. All B-deck aft, formerly occupied by junior officers, has been given to the medical department. This is divided into four spaces of 20 bunks each in three tiers, and one space of nine bunks in tiers of three. Bathing and toilet facilities are most convenient to all these spaces. These compartments are intended for wounded or insane. They are well lighted naturally and artificially, and well heated. The surgeon's examining room and library is connected with the sick bay, and is just forward of the dressing station. Sick call is held here twice a day. The venereal prophylactic and treatment station is on the port side of B-deck forward of the sick bay. It contains a trough and two basins, and is well equipped. There is one small locker for dirty linen, a clean-linen locker, and two storerooms for medical property,

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last annual report the deck watches for medical officers discontinued, although the pharmacist and dental officer obliged to do that duty, but since the signing of the s will doubtless be discontinued.

*Calamaries.*—Between October 1, 1918, and August 28, ship steamed 51,560 miles and transported 18,336 troops Atlantic without a death on board.

*Great Northern.*—The ship left Bremerton Navy Yard Ark January 17, 1918, stopping at San Francisco, where refugees and 1,506 sailors were taken aboard for de-east coast. The ship arrived in New York February 9, additional repairs and changes were made at the New York, completely equipping her for the transport service. w York March 12, 1918, for Brest, France, on her first 787 troops and 124 officers, arriving in Brest March 20, then she has made nine more round trips to France, all 28,166 troops. She arrived in New York November in her last trip. Since then she has been at Flecher's ship-joining engine overhaul and other repairs. The ship bears g record:

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of cases developing after the ship got under way. It would certainly be fair to assume that the majority of cases resulted from infection occurring previous to embarkation. Another indication that most of the cases resulted from infection previous to embarkation is the fact that the highest point of the epidemic was reached within the first three days. It is of interest to note the comparatively small mortality in the cases complicated with broncho-pneumonia. This low mortality is attributed to the administration of polyvalent antipneumococcic serum in all cases.

	Troops.	Crew.
Total number of admissions (enlisted personnel).....	201	1
Total number of admissions (officers).....	3	1
Total number of cases complicated with pneumonia.....	13	.....
Total number of sick days due to influenza, including influenza-pneumonia.....	714	6
Total number of deaths aboard.....	6	.....
Total number of admissions of members of medical corps.....	.....	1
Total number of admissions of members of hospital corps.....	.....	19
Average complement during the period of epidemic.....	1,746	379
Number of days elapsing between the beginning and height of epidemic.....	3	.....

*U. S. S. Huron.*—On October 13, 1918, 2,422 troops were embarked for France and during the embarkation 35 cases of influenza were detected and transferred to hospitals ashore. During the passage to France 88 cases developed among the troops. Of these, 20 developed broncho-pneumonia and 4 died.

The crew is exposed each trip in both France and the United States to venereal infection. It has been noted that the majority of venereal infections have originated through exposure in American ports.

*U. S. S. Kroonland.*—Facilities for the treatment of the sick: The main sick bay is located on the promenade deck and occupies the full width of the deck house. It is furnished with an ample amount of natural light and ventilation through large square port holes. In addition to the natural ventilation there is a blower system which supplies either hot or cold fresh air.

The sick bay proper contains 42 very satisfactory beds of the latest pipe variety. The heating of this compartment in addition to the hot air is by means of steam coils which have been installed during the present stay in port. Leading out of the sick bay aft is an eight bed ward especially fitted with nondestructible bunks for the care of the insane. This ward opens on the port side of the promenade deck into a large wire screened area, recently installed, in which the insane may secure recreation and exercise without danger of jumping overboard or injuring themselves.

The operating room is well equipped, spacious and adequate to meet any surgical demands that may arise. Leading off from the operating room is a surgical ward of eight beds fitted up with its own toilet and bath room. Adjoining the compartments mentioned above and connected with the other are a dressing room and dispensary, office, diet kitchen, toilet and wash room and a well equipped laboratory. On the extreme after part of the promenade deck an isolation ward is located. This is divided into two compartments and contains 20 beds with its own toilet and wash room. The ventilation of this ward is good and its location is ideal for isolation purposes.

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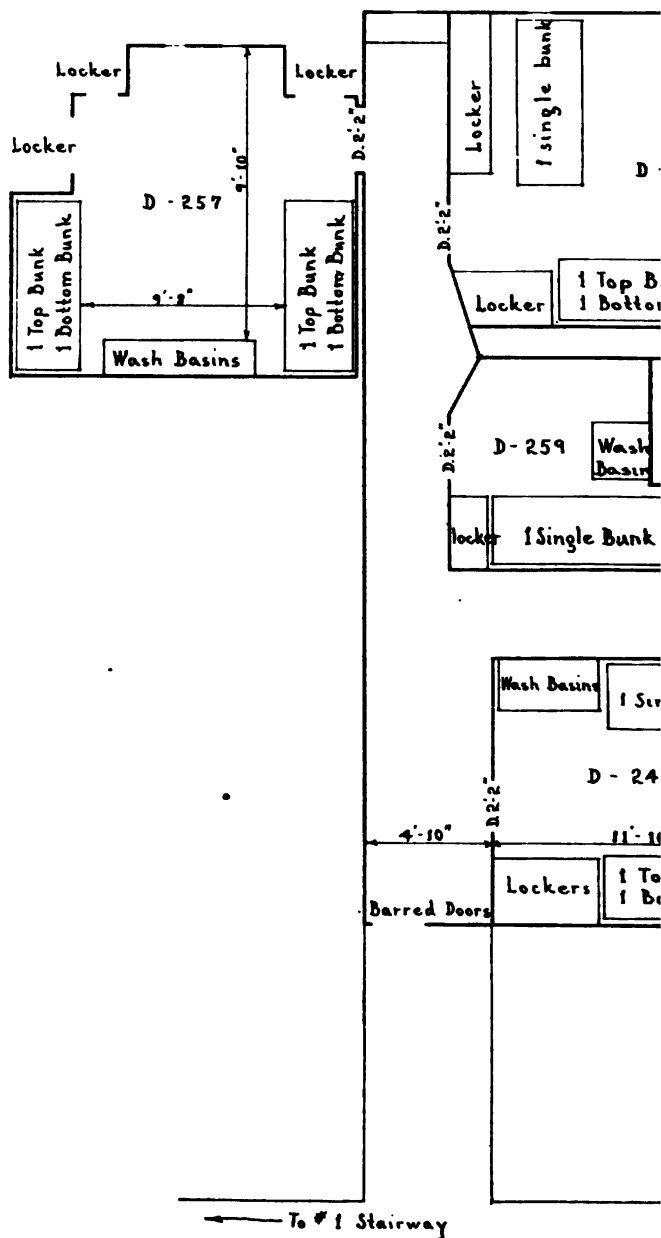
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During our present stay in port the noncommissioned officers' quarters leading off the forward part of the after well deck have been converted into a secondary sick bay, providing 48 beds of the regular sick-bay type. This more than doubles our capacity for bed-ridden patients. Leading off from this ward in the old crew's barber shop a well equipped diet kitchen has been installed. An additional dressing room with built-in dressing tables and wash basins with steam connections has been installed in the old troop infirmary which is located in the farther part of this compartment. Leading off from the after well deck are the compartments for dressing cases and convalescents, the capacity of each being as follows:

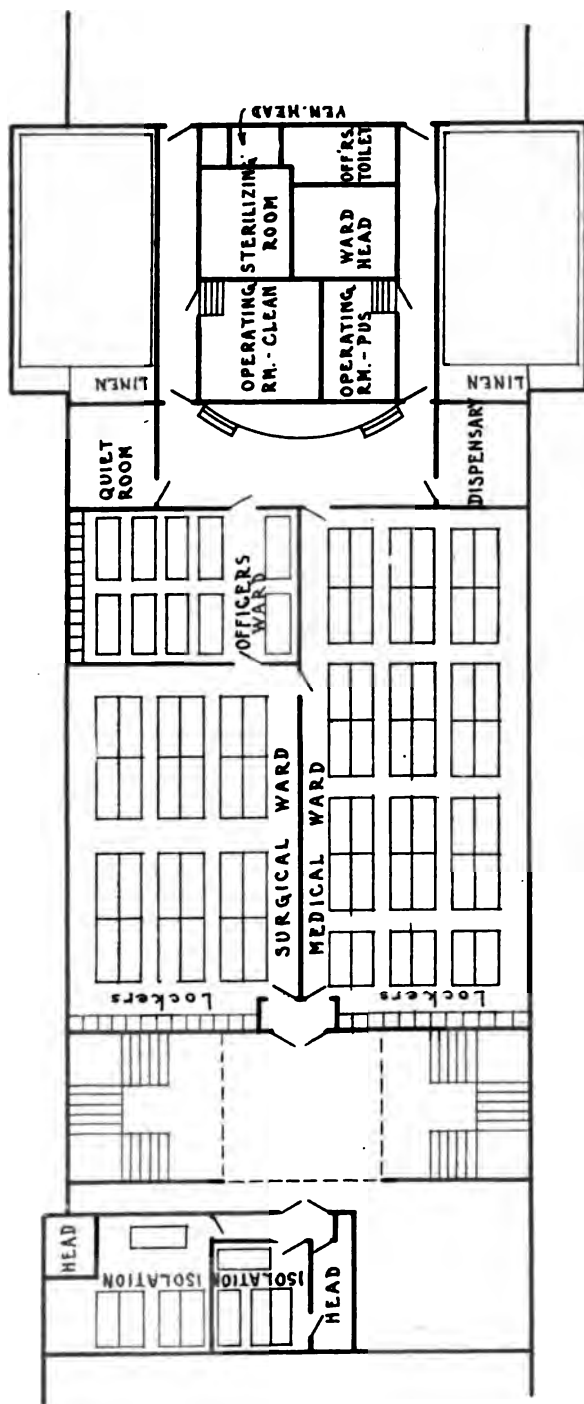
E-1.....	183 spring bunks.
E-2.....	207 spring bunks.
E-3.....	84 spring bunks.
E-3.....	90 canvas bunks.
F-1.....	204 spring bunks.
F-2.....	168 spring bunks.
F-3.....	168 canvas bunks.

The total capacity of these compartments is 1,089 bunks of which 846 are of the spring bottom variety and are to be fitted with mattresses, pillows, blankets, and sheets for the care of those cases needing more comfortable quarters than has heretofore been provided for dressing-cases and convalescents. In the E-1 compartment a new dressing room with basin and steam connections and dressing tables has been installed. This will enable all of the dressing-cases in the E compartments to be dressed without having to go up the hatches and out over the well deck. In addition to the above it is possible to carry troops and convalescents in canvas bunks in other compartments up to the total capacity of 3,200.

*U. S. S. Leviathan.*—During the westbound voyage from Brest, France, to Hoboken, N. J., February 26 to March 6, about 10,200 troops, including sick and wounded, were transported home. The passage was marked by an epidemic of influenza, during which 2 per cent of the Army personnel were treated for this disease. Two enlisted men were admitted to the sick bay on February 25, a few hours after embarking, with undoubted symptoms of pneumonia. Another enlisted man embarked on February 26 with frank signs of consolidation in his left lower lobe and typical symptoms of pneumonia. One of the above had the preliminary chill on February 21 and another on February 22. The third had a temperature before leaving the Army camp and was advised by a medical officer not to make the trip. All but one of these cases recovered after a severe illness. A large number of the troops were coughing when brought aboard ship, but their great desire to return home with their commands prevented them from reporting at sick call for treatment. There were no cases of influenza aboard ship when the troops embarked.

The following is a daily list of admissions to the sick list of the Army:

Feb. 25.....	8	Mar. 3.....	35
Feb. 26.....	11	Mar. 4.....	26
Feb. 27.....	9	Mar. 5.....	9
Feb. 28.....	10	Mar. 6.....	11
Mar. 1.....	50		
Mar. 2.....	41	Total.....	210



OFFICERS	WARD	10 BEDS.	NOTE :	CU. FT.
SURGICAL	"	48	ISOLATION WARD IS ONE	
MEDICAL	"	84	DECK ABOVE SICK BAY	
ISOLATION	"	18	SICK BAY = 100,000	CU. FT.
	TOTAL	160	ISOLATION = 8,000	CU. FT.



Number 43 developed pneumonia, the majority similar to that occurring during the influenza pandemic of the fall of 1918. (23 per cent) died aboard ship, seven after reaching thirty-eight cases were retained aboard after reaching crisis before transfer to an Army hospital. Those sent ashore were later reported, with two exceptions, as doing well. The death of one other patient was received after

The ward of the sick bay (84 beds) was used for the first time when this ward was filled 77 cots were placed on the deck of B-deck, in the vicinity of the sick bay, for the additional treatment. One hundred and ten patients were treated in the sick bay on the outside on B-deck. Of those developing pneumonia (23 per cent) were in the sick bay and 8 (19 per cent) on the deck. Only 1 death (11 per cent) occurred among the patients treated on the outboard deck and 9 (89 per cent) among those in the sick bay.

All of the patients admitted to the sick bay were given morphine for the control of the severe general pains. This was followed by profuse perspiration with many sharp drops in temperature  $7^{\circ}$  in 12 hours.

Patients were clad in the regulation light Navy nightshirts, which afford little protection and are soaked by even a moderate perspiration. In many of our cases the nightshirts were "soaking wet." Warm pajamas were substituted for the nightshirts as soon as possible after this was noticed. As it has been pointed out by direct draft playing upon the chests of healthy persons can cause pleural reaction, with effusion into the pleural cavity, it does not seem unreasonable to assume that similar conditions exist in patients infected with the causative organism of influenza. The result in changes that affect not only the pleura but the lung tissue. With this in mind it was decided to discontinue the administration of drugs causing perspiration and to re-treat on the outboard deck to wear their undershirts, and socks.

Fourteen and ten cases of tuberculosis, including 40 stretcher patients, were embarked on February 24. Four of these patients were in poor condition when brought aboard ship, and two died, one on February 27 and the other on February 28.

On the second E. R. S. 1, in standees, there were 1,002 sick and wounded reported home. Of this number there were 177 dressings done. There were in all 963 dressings done during the voyage.

For 9 days.....	540
Second day for 5 dressings.....	275
Third day for 4 dressings.....	96

There were 52 cases that were dressed but once or twice, requiring changing or readjustment of splints, strapping of bandages, etc.

Many of these cases were lacerations of arms and legs occasioned by explosives, shrapnel, or machine-gun bullets; compound fractures of arms and legs from machine-gun bullets and shrapnel.

nel; and a number of amputations of arms and legs and fingers due to extensive wounds and from accidental causes as motorcycle, truck, and railroad injuries. There were a few cases of unrecovered appendectomy wounds, mastoid, resections for empyema, two eye enucleations, and two chronic otitis medias requiring dressing. One of the appendectomy cases had a fecal fistula still active.

All of these cases were ambulatory; all were well advanced in their convalescence, the majority having received their wounds not later than October, 1918; and most of them showed marked improvement during the time they were aboard. In a number of instances among the compound fracture cases bone sequestra were removed, and in a few small pieces of shrapnel spontaneously worked to the surface of wounds that were still open, and in some cases causing wounds that had been healed for a time to reopen. The difficulty also of healing wounds that had been subjected to the influence of gas, either at the time they were received or very shortly afterwards, before receiving first-aid dressing, was very obvious.

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(A striking example of the initiative and devotion displayed by medical officers of the Navy is furnished by the following incident of the influenza epidemic. Troops landing in Brest were marched 4 miles to the Army rest camp at Pontanezen where they were held for a day or two prior to entrainment for the front. A small barrack dating from the Napoleonic era was the nucleus of the camp and from it the men procured their stores, then bivouacking in the open. Often men landing from transports, still weary or seasick from the voyage, would fall out in the 4-mile march to camp and sleep on the roadside. On a certain afternoon in October the *Leviathan's* cargo of troops was landed and marched to camp. A violent storm was raging. All the lights of the camp had gone out. The camp hospital was full and had closed its doors. Lieutenant Commander W. Chambers, Medical Corps, United States Navy, serving with the Thirteenth Regiment Marines, then a part of the A. E. F., realized that there would be many stragglers on such a night and proceeded to organize immediate relief. The Y. M. C. A. hut was made the center of a temporary hospital of 75 beds. The regiment's Ford ambulance was put into service. Three aid stations were established along the route from pier to camp manned by Navy hospital corpsmen. Eight naval medical officers worked in shifts throughout the long night. The results of their work are significant. Four dead were found on the roadside; 150 men sick with influenza and 80 cases of pneumonia were rescued, besides 370 men convalescent from influenza who had fallen out from exhaustion, a total of 600 soldiers. These men were kept in the temporary shelter provided, fed, treated, and nursed for 36 hours, after which the regular establishment took them over.)

*U. S. S. Madawaska.*—The complement has averaged for the year 40 officers and 541 enlisted men. The health of the personnel has been excellent for the greater part of the year. The percentage of sick for the year, 1.192, is very low, considering the large number of newly enlisted men received on board. The daily average of patients was 6.93. In February influenza was epidemic, but never became alarming. Thirty-seven cases were admitted, all of a mild type.

th there were also 2 cases of scarlet fever and 14 of e member of the troops developed meningitis during ip and died before we reached port. April saw a small diphtheria in the Navy personnel. Three cases were diphtheria antitoxin was used freely and no fatalities case of smallpox was discovered among the troops dur- trip. The lesions were typical, but prompt isolation, vaccination of every person on board not showing a t scar, proved effective against the spread of the disease. he pandemic of influenza prevailing during the months nd November was limited to 50 cases among troops and ng the crew. The wearing of masks continually, throat er cent silvol solution twice daily, and educational ed an important part in holding the disease in check. one soldier was the only fatality. Special heavy outer ve been obtained and issued to all members of the deck duties necessitate long exposure to cold and inclement ese add much to the comfort of the enlisted personnel k and lookout watches. The regulation clothing issued ast year has been found of light weight and of poor any instances, as compared to the standard maintained ar. The dye in all recent issues has not been fast, and when washed, usually changed in color or faded rapidly. ulty has been experienced in sterilizing bedding and ing the past year, the sterilizer at present in use being nan type which was partially wrecked by the German leaving the ship. Repairs by the ship's force have been as practicable but the apparatus has never been efficient. ilized have to remain in the sterilizer for at least 24 out of the low temperature, and condensation of vapor is t every article sterilized must be dried in the open air e.

pparatus recommended and approved by the bureau and alled by the Bureau of Construction and Repair has not d. It is imperative that an efficient apparatus be pro- e purpose of sterilizing clothing of troops returning from uch troops are not thoroughly deloused before embark- ies for the medical department have been of excellent there has been no trouble in procuring them. All requi- been promptly filled. The division medical officer, New- ivision, Cruiser and Transport Force, has been of great seeing that shipments received are promptly sent to the ch consigned. The sick bay contains 40 bunks and is a ompartment. It is in every way all that can be expected ip. It is on B-deck, where the ports can be practically and in addition there is a large skylight. Opening from proper are the operating room, dispensary, and bath- operating room is small, but it is well arranged and is he standard Navy equipment. There are special lights r illuminating the operating table and a small adjustable ens for nose and throat examinations. The one draw- efficient storage space for the large quantity of sterile quired on return trips.

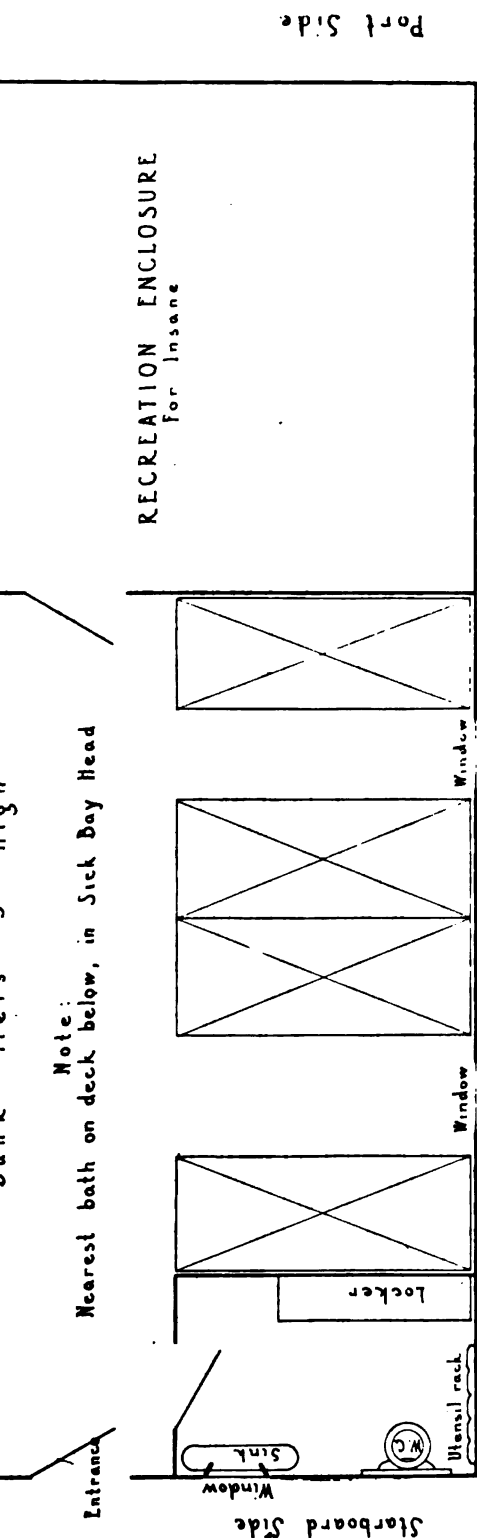
The dispensary is well equipped with standard Navy stock. It has become necessary to remove the refrigerator to make room for a second typewriter desk, required by the enormous amount of paper work done on the return trip. The laboratory equipment has been moved to another compartment in connection with the dressing room. This space has been equipped with a basin locker, refrigerator, bacteriological incubator, etc., and makes a very good laboratory. There is a great deal of routine laboratory work done, such as throat and urethral smears, throat cultures, blood cell counts, etc., and it has become necessary to do this work outside the dispensary.

The ship has been fumigated throughout with cyanide gas twice during the year. This was done for the extermination of rats and vermin and was successfully carried out by the United States Public Health Service. Upon arrival in port after each trip all compartments occupied by troops are thoroughly cleansed. The decks are scrubbed and scoured. Bunk bottoms are removed and scrubbed on the open decks. Bulkheads and overhead surfaces in each compartment, standees and bunk frames are all painted, so that when troops are embarked the compartments are in the best sanitary condition. Liquid soap shakers have been installed in the troop bath and wash rooms and have been found very useful. Particular care has been exercised in renovating the compartments occupied by contagious or infectious cases on return trips. The bedding from such compartments is sterilized. The bulkheads and overhead surfaces are washed with cresol solution. The decks are washed with cresol solution before they are scrubbed and scoured, and standees and bunk frames are thoroughly scrubbed with the same antiseptic. After thorough cleansing and drying, all metal parts are painted.

During the trip with troops, each compartment is cleaned by the sanitary corps detailed by the commanding officer of the troops. Inspections are made daily by the senior medical officer, and regular inspections by the Army medical officers are made twice a day. In this way the best sanitary conditions are maintained.

During the January, 1919, voyage from France 1,199 Army patients were on board. This was the largest number carried on one voyage. A detail of 10 Army medical officers and 4 Army nurses (female) and 50 male attendants was assigned by the port authorities in France to assist in caring for the Army sick and wounded. A special detail of medical officers and attendants has always been assigned when a large number of sick and wounded were to be transported. When an excessive number of mental cases were to be transported, a psychiatrist was detailed to accompany them, and an attendant for each patient was assigned by the Army authorities.

*U. S. S. Mallory.*—When this ship was taken over by the Navy for use in transporting Army troops, a vast amount of alteration and many additions were required. The following is a summary of work done in the medical department or about which it was directly concerned: The sick bay was moved farther forward and carried to a higher deck, toilet and bath being provided. Waris were built for the isolation of contagious cases and for the insane. An operating room was provided, equipped with all necessary apparatus, sterilizers, etc. A disinfecter for clothing and bedding was installed and likewise shower baths, sanitary scuttle butts, distilling plant. Tiling was laid on the decks of galley and butcher shop.



# QUARTERS FOR INSANE

Total Capacity - 21 Bunks

## U.S.S. MALLORY

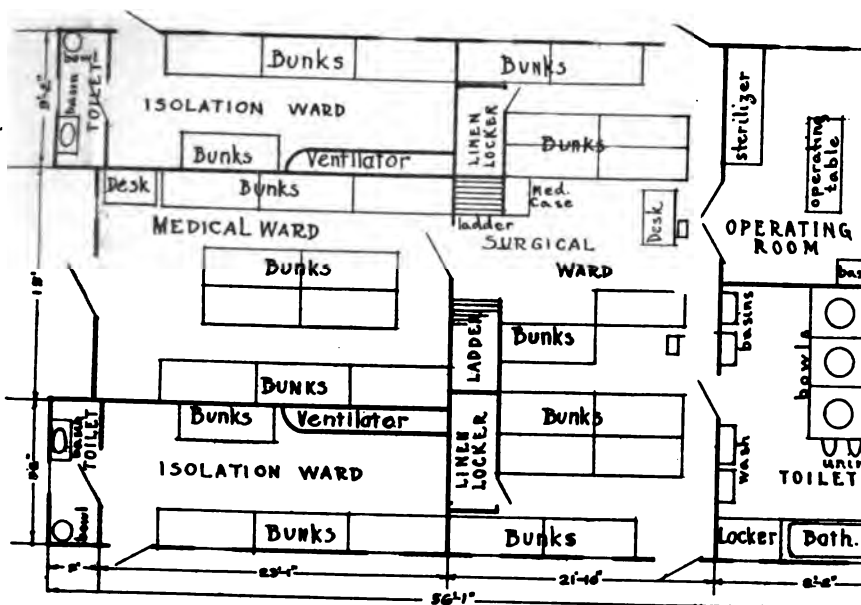
Surgical Annex  
On Boat Deck

New mess tables were provided and iron standees for bunks replaced the old wooden ones. The lower decks and troop toilets were supplied with a blower ventilating system. Scuppers were cleaned out so that they would drain properly and new ones were added. The fresh-water tanks were cleaned and stopped. The ship, when taken over, was full of rats, roaches, and bedbugs and required thorough fumigation. This was done twice in a period of six months. The ship is now in a fairly satisfactory condition from a sanitary point of view, though nothing but military necessity would justify the crowded condition that has existed at times.

*U. S. S. Manchuria.*—The present work of bringing sick and wounded back to the United States is taxing the ship's resources very heavily. A hospital ashore capable of caring for 1,000 patients is no mean institution. It requires a large personnel and elaborate equipment, yet this ship on its last trip cared for 1,042 Army and Navy sick in troop standees, in addition to which the casual sick among 3,000 Army troops which were being returned and the ship's company had to be cared for. One of the most laborious features is the paper work required. It is impossible to complete both Army and Navy forms expeditiously and without error with the force at hand. If this work were likely to continue for any length of time, it would be necessary to add a force of clinical clerks or stenographers to the medical department. Too often patients come aboard with incorrect or insufficient records which complicates matters very much.

*U. S. S. Maui.*—As a transport the *U. S. S. Maui* is ideal and can easily be maintained in an excellent sanitary condition. In addition to carrying 3,600 troops she maintains a cargo space of 250,000 cubic feet. The general messing plan for the troops is as follows: Three meals a day are prepared and 15 minutes before mess call is sounded all troops go below to their respective compartments and are then brought on deck in company formation under the supervision of their company commanders. Troops are then formed in double rank on the lee side and go below into No. 2 hatch, entering the forward end of the mess hall through the port and starboard doors. At each entrance serving stations are located in charge of a naval petty officer with troops detailed to do the serving. The troops after having their meal tickets punched go to the mess hall with their rations and passing to the farthest end of the compartment arrange themselves at the mess tables, which accommodate approximately 500 men at a time. There are from 10 to 15 men detailed to keep the troops moving and direct them to places at the tables. Troops, as fast as they complete their meals, gather up their refuse and deposit same in garbage cans located on both sides adjacent to the washing stations, in the after end of the compartment. The washing troughs, located on port and starboard sides, have two compartments, one containing hot soapy water and the other hot rinsing water. The water is kept constantly hot by steam plungers directed into the water, and the men, after cleaning their mess gear, pass out at the after end of the mess hall and up the passageway to the open deck, where they rest until the mess is completed. This plan has worked very satisfactorily and, under favorable conditions, 3,000 men have been served in 1 hour and 30 minutes.

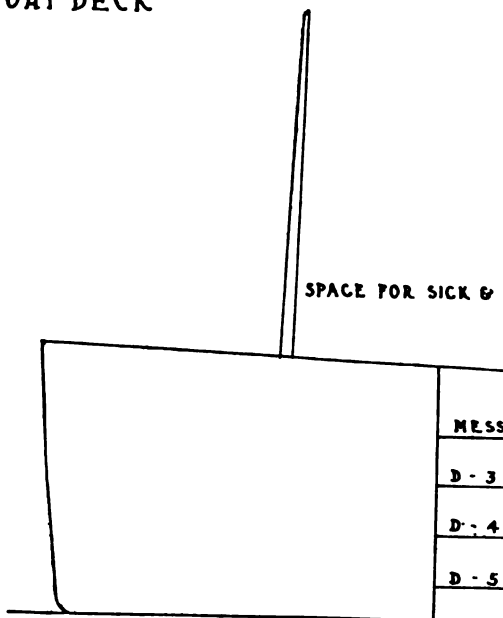
Percentage of sickness: Crew, 1.14 per cent; troops, 0.481 per cent.

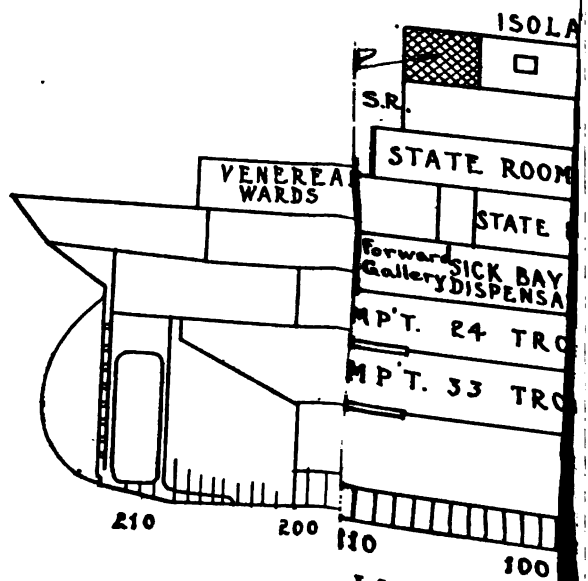


BOAT DECK



PROMENADE DECK





140048-19.—(To face

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health of the troops was good but there were many who could not have been permitted overseas, due to constitutional and chronic disabilities, as kidney and heart disease. Thorough examination and careful observation had been made of the troops, prior to embarkation, many of the men would have been eliminated from duty with the American Expeditionary Force. It appears that with the advance of time there was some improvement in the selection of men, except with the colored troops, who, as we observed, at all times, not a few unfit to endure the rigors of actual warfare.

Space per man in living spaces was as follows:

	Cubic feet.
For officers and crew	83.1
For troops	146.0

Water closets and urinals were sufficient in number. The spaces were well lighted and heated to encourage their use. Urinal troughs flushed continually while troops were present. The toilet seats for troops accommodated 194 at a time.

The menu for troops was as follows: *Breakfast*: Stewed apples, etc., are served every morning), beef stew with vegetables, bread, and coffee. *Lunch*: Fresh fruit (apples or oranges), roast beef, pork, ham, potatoes and other vegetables, corn, peas, string beans, etc.), coffee, and bread. *Dinner*: Beefsteak, potatoes, and other vegetables or frankfurter, and potatoes; or boiled bologna, potatoes, and other vegetables. *Supper*: Beef stew, tea, bread, and jam or canned fruit.

Space for troops was 58 by 16 by 8 feet, lighted by 15 ports on each side and several overhead ports and 12 electric lights on each deck. The steam. The bunks numbered 110, in three tiers.

*U. S. S. Mongolia*.—This vessel of 27,000 gross tons, leased from the Great Eastern Steamship Co., was commissioned as a naval transport, U. S. S. *Mongolia*, 1918. She has made regular trips to Europe transporting officers and men of the Army to France. One thousand and three sick and wounded of the Army and Navy have been returned to the port of debarkation in the U. S. S. *Mongolia*. During the year there have been two deaths in the U. S. S. *Mongolia* and 31 deaths in the Army, of which 29 were the result of the influenza epidemic in October, 1918. No communicable diseases of any importance have occurred aboard except influenza epidemic during the month of October, 1918. The personnel of the medical department has been efficient and faithful in the performance of duty under very trying circumstances.

*U. S. S. Copatan*.—Built originally to operate on Long Island Sound, this vessel was commissioned in the U. S. Navy on February 1, 1919, and sailed for Europe where she operated between Channel and the Mediterranean. On January 1, 1919, 72,977 troops were carried and from January 1, 1919, to August, 1919, as follows:

	72,612
	6,714
	249
	204
	308
	26
	80,173

The troops carried averaged 1,400 per trip.

A sick bay with five beds was available and also a dispensary containing a small operating table. Sterile dressings were obtained ashore as required for each trip. The isolation room contained 2 beds. On the upper deck a small room was provided for prophylactic treatment. As soon as troops disembarked all decks and bulkheads were regularly scrubbed down with soap and hot water and once a week lye was also used. The most absolute cleanliness was maintained.

*U. S. S. Orizaba.*—Since this vessel was placed in commission May 27, 1918, it has been in continuous service, except for very short periods in port, transporting troops from the United States to France. On some trips to the United States disabled troops have been transported. On one occasion 200 psychic cases were carried ranging from mild to severe mental disorder. The ship has not proved adapted for this purpose and the transportation of the insane has been discontinued. The carrying capacity for troops is as follows: officers 98, enlisted personnel 2,924. The following sick and wounded capacity has been designated by the force commander for this vessel:

Total bedridden in sick bay bunks.....	90
Able to walk, requiring surgical dressings, in troop standees.....	1, 000
Tuberculosis cases.....	25
Able to walk requiring no attention, in rooms for officers.....	90
Convalescents needing no special medical attention, in troop standees.....	1, 000
Total .....	2, 205

The sanitation of the ship with troops aboard has been a very important consideration. The first two or three days at sea have been the most difficult. A large number of the troops suffer from seasickness and at this time most strenuous efforts are necessary to keep the ship in sanitary condition. Difficulties have also arisen because the Army personnel on board has not always enforced the existing sanitary regulations and constant inspection and supervision is necessary.

Army ambulant sick are taken care of by the Army medical department. A portion of each of the two troops' mess compartments have been assigned for the holding of sick call. Bed cases are taken care of by the Navy medical department. The bed capacity of the sick bay is 66 beds, 8 of which are in the isolation ward. This number has been ample except during the influenza epidemic. At that time, a troop compartment containing 72 beds and sufficient toilet facilities was utilized for a sick bay. This compartment has since been permanently assigned to the medical department and is used for the berthing of invalided troops. For the dressing of the wounded a compartment 16 by 15 feet has been fitted out as a dressing station.

*U. S. S. President Grant.*—During the year 1918 this vessel was used in transporting troops to France. The first complete trip began December 26, 1917, and the ninth trip began December 15, 1918, but was not finished in that year. The average Navy personnel for the year was 658 with a total number of sick recorded 716.

Percentage of sick.....	1
Mortality.....	3

The 1 per cent of sickness with only three deaths (pneumonia 1, nephritis, 1; accident in coal bunker, 1) is a very low percentage con-

many epidemics during the year. This record is due to the favorable physical condition of the crew brought about by the discipline in which daily calisthenic exercise and athletic sports have not only been encouraged, but enforced. This has played a major part in preserving the health of the crew. The problem of caring for the sick in our quarters has changed since the war. The greatest of these problems were those of light and ventilation, which the end of the war itself solved. It will be noted from the statistics of the epidemic in September that the darkness had to treat our sick was our greatest difficulty. An outfit with 24 bunks has been erected abaft the sick bay. This has saved very little deck space and required very little work to save any cases of pneumonia could have been saved if we could have had this space on the former trips. The insane ward on B-1 was also erected while in port the last time. This can be used as an additional sick bay for 35 insane cases. With these two additions, capacity has been doubled without injuring the troop-carrying capacity of the ship. To accommodate the convalescent wounded, the quarters below have been fitted out. Under this new arrangement our complement is 600 wounded and 400 well troops.

Embarked for Europe.....	45, 156
Embarked for Norfolk.....	10, 966
.....	56, 122
Number of sick.....	1, 476
Number of deaths.....	151
Number of sick.....per cent....	9

The above report complete, 4,771 troops embarked October, included in the above number.

*Princess Matoika*.—This vessel was formerly owned and operated by the North German Lloyd Line of Bremen. She was transferred to the U. S. Navy at Manila, and at that time was making regular passages between Manila and ports in the Orient. She was brought to the United States by the Shipping Board and was placed in commission at Norfolk, N. J., on April 27, 1918. She has made seven trips, transporting 21,599 troops to France and 3,722 troops, 3,357 sick and wounded, from France to the United States. Tonnage 10,981; displacement 17,500.

The physical health of the crew and troops has been unusually good. The influenza epidemic was responsible for a large number of our cases. Cases of tonsillitis, mumps, measles occurred sporadically, but never in numbers sufficient to cause any great concern. There were 21 cases of pneumonia among the troops during the summer exclusive of cases developing as a complication of influenza. There were 11 cases of lobar pneumonia, 10 cases of bronchopneumonia, and no deaths. There were 42 injuries, most of which were of slight importance.

A large consignment of sick and wounded numbering 738, arrived home during the month of December. Arrangements were made beforehand for their reception and they were received in an orderly manner without any confusion. Each man was tagged, using a certain color for each class of cases, and when he came aboard he was escorted by a seaman or a hospital attendant to the compartment allotted his class. The passenger list

was checked on the dock by a member of the ship's medical department. The Army field cards were removed from the patients as they came aboard and the compartment to which they were assigned was written on the card. These cards were arranged alphabetically in the office and by referring to them we could readily get the history of the patient and his location aboard ship.

There were 204 nervous and mental cases in this consignment, 27 violent insane, 114 mentals, and 87 neurological. We have two compartments on the main deck which were made by tearing out old staterooms, that are well suited for the care of such cases. A psychiatrist and 40 attendants accompanied these patients. Additional guards were gotten from the healthy troops and an experienced pharmacist's mate was placed in each compartment. Several of these patients had to be transferred to the sick bay for such conditions as mumps, ischio-rectal abscess, influenza and tonsillitis. Ten were deloused (cooties). One case of lousiness had a fractured forearm put up in a cast. This cast had to be removed and replaced as the cooties were camping there in large numbers. Three cases had to be tube fed. It was difficult to prevent the violent ones from tearing up their clothes, and we were forced to send three of them ashore on stretchers as there were no uniforms to be had for them.

The surgical cases were classified immediately according to indications for renewal of dressings. Sterile gauze sponges were used in all cases. The surgical work required 864 bandages and 1,450 yards of 8-thickness gauze for a total of 1,200 dressings. All patients were inspected for venereal disease and lousiness, and 42 cases of lousiness were found. A few of these were among well troops. Two deaths occurred from tuberculosis. One died the second day out at sea, and the other on the sixth day. These cases were far advanced and were in a precarious condition when sent aboard.

*U. S. S. Powhatan.*—The average complement of the ship's company for the past year was 39 officers and 475 enlisted men. The average number of troops transported from the United States to France each trip was 57 officers and 2,037 enlisted men. Three hundred and seventy-seven Army patients were transferred from France to the United States and 350 are now en route. There are also 110 officers and 1,596 troops en route at the present time. The percentage of sickness for the year was as follows: Navy, 1.66 per cent; Army (en route to France), 1.01 per cent. Two deaths occurred among the crew. One was due to broncho-pneumonia. The other as determined by a board of investigation was caused by drowning. The body was not recovered. Fourteen deaths occurred among the troops, nine due to broncho-pneumonia. A large percentage of sick days among the troops is largely accounted for by the isolation of all suspected cases of communicable diseases and the transportation of sick and wounded soldiers from France to the United States. One member of the crew while operating a winch accidentally crushed his foot so badly that amputation of the leg at the lower third was necessary. Another man sustained an intra-cranial lesion due to a fall, which was followed by partial paralysis of the trunk and extremities, rendering transfer to the hospital necessary. One morning while the troops were assembling for mess a large wave broke over the after deck throwing 1 man against a ladder, fracturing both bones of the forearm, and in-

er men less severely. One case of acute appendicitis was successfully operated upon at sea and a number of minor operations, such as tonsillectomies, circumcisions, excisions of sebaceous cysts, were performed. Several small epidemics of mumps and measles occurred among the troops and one quite severe epidemic of typhoid fever affected both crew and troops. One sporadic case of diphtheria and one sporadic case of scarlet fever developed among the troops. Strict isolation and prophylactic measures among the troops prevented further spread of the disease.

*Pueblo*.—Additional supply ventilators have been installed in the windlass compartment, the chief petty officers' quarters, the mess bay, the living conditions in these spaces being much improved thereby, but the crew's space on the gun deck is still far from sufficiently ventilated. While conditions on this deck are much better than on a ship with a complement of about 1,100 men we can expect conditions to be much worse now that standee bunks for an additional 500 men have been installed on the ship, which is acting as a transport for the troops. While present conditions make the use of the ship for a transport imperative it must be said in passing that the conditions for the troops are not, and it does not seem practicable to make the ship fit for such duty. Ventilation and facilities for bathing and airing the men on deck are far below the requirements for the appearance of contagious diseases space for isolation and bay conveniences are markedly inadequate.

*Rijndam*.—Cases of communicable disease among the troops have been practically nil, with the exception of one epidemic of influenza. The September trip was marked by a severe and virulent epidemic of influenza. There were in all 100 cases of the disease and 65 per cent of the total number of troops on board remained in the hospital for it. Fifty-five deaths occurred prior to discharge of the troops and there were probably several more after the discharge of the sick. The type was exceedingly virulent and no treatment proved efficacious. It was necessary to use three troop hospital bays to overflow after the hospital establishment was filled. It was not possible because of the large number affected. The medical department was overwhelmed, but with the assistance of the Army and the crew of the ship everything possible was accomplished. In passing, mention should be made of the splendid work of the members of the medical and hospital corps, who worked to the point of complete exhaustion. The members of the crew doing temporary duty during this trying time did excellent work. The medical corps is grateful for the cooperation of both the senior medical officer and the executive officer. The crew practically escaped the epidemic although exposed on all sides. Only a few cases occurred and they were mild. One member of the crew was transferred to an Army hospital in France with pneumonia complicating influenza. An analysis of the causative factors of the epidemic seems to lead to the following conclusions, the facts being based on the information and report of the senior medical officer serving with the troops: The troops were largely western troops who had made a long sea and train journey just prior to embarkation. They were landed in Camp Merritt, which seems the probable source of infection. After a stay of 24 hours in Camp Merritt they were

marched to the ship during the night and embarked in the crowded troop spaces of this vessel. The infective agent once introduced, their lowered resistance and the necessarily crowded quarters provided all the necessary conditions for a severe epidemic. The troops and returning sick and wounded have been inspected each trip for vermin and a few cases have been found. The men with pediculosis have been subjected to an antiseptic bath, supplied with new underwear and had their outer garments sterilized by steam under pressure. No pediculosis has been found among the crew. Since October the status of this transport on the homeward bound voyage has been that of a splendid ship. In August we carried only 19 sick and wounded soldiers, in September 64, in October 129, in November the number advanced to 426, and in December to 1,097. Handling 1,097 sick and wounded when handicapped by the limited number of the hospital corps men was a titanic proposition, but thanks to the hearty cooperation of the medical and hospital corps of both Navy and Army the task was accomplished with satisfaction.

*U. S. S. Roanoke.*—This ship was converted from a mine layer to a transport early in 1919. The medical officer of the ship testifies to the readiness with which the naval constructors acted on every suggestion about changes required by sanitary considerations when the vessel was being adapted to its new work.

It was customary before men of the crew went ashore in European ports to have them called to quarters and warned of the serious danger of venereal infection. Troops were fed three times a day and each scullery was provided with four troughs 20 feet long full of boiling water in which to immerse mess gear. The galley was kept going day and night. The menu for each week was submitted to the medical officer for criticism before approval by the commanding officer. The original intention had been to mess troops in their compartments but this was abandoned because the steam tables and pipe lines heated them unduly.

*U. S. S. Sierra.*—The use of salt water for washing mess gear is highly objectionable from both a sanitary and esthetic standpoint. Four large tanks are provided for washing mess gear. Two are used for washing and two for rinsing. The water is heated by means of live steam jets and it requires some little time to raise the water to a boiling point; mess gear will not thoroughly dry due to the hydroscopic properties of magnesium chloride and other salts contained in sea water. This, of course, keeps the mess gear sticky and promotes rust formation on all metal articles. In port fresh water is used but there is always danger of contaminated harbor water being used before the salt water connection is broken. In the case of troops each man retains his individual mess gear and a tank system with a fresh supply instead of salt is perhaps the only feasible method that can be used. Salt-water showers discourage cleanliness. Such a bath leaves the body damp and produces a sense of discomfort and uncleanness. Fresh water for bathing would not be available unless an additional evaporator and distiller were installed.

*U. S. S. Susquehanna.*—The average naval personnel consists of 3 officers and 580 enlisted men. The troop-carrying capacity is 11 officers and 56 noncommissioned officers above grade and 2,351 enlisted men. When loaded to full capacity the ship is very crowded

ps have been made without serious consequences of any only one serious epidemic. During the eighth trip troops 104 Army and 109 Navy cases of influenza de- ur of the Army cases died. Three of these were sick me board and the fourth had broncho-pneumonia when ne Navy case died. These patients were all taken care l corpsmen in addition to their other medical depart- and so efficiently that the commanding officer of the rd wrote a letter to the commanding general, American y Forces, commending the medical department of this l average of air space for all troop compartments is e feet per man. This is not enough, especially in rough n the hatches have to be battened down. The imme- nences of this overcrowding have so far not been serious, o way of ascertaining the later effects. It seems prob- , from the histories of some of the cases of pulmonary eing returned to the States that they developed or were es and were aggravated while being transported to ould seem almost unbelievable that men could be car- ch crowded conditions and for such long periods, 12 ithout alarming epidemics and high mortality, but so n done with remarkably good record. t two months ago ventilation of troops' compartments by natural draft. At that time a system of blowers in three forward compartments, which has helped out vers were in working order. In fair weather good ven- e secured by wind sails and open hatches, but this is rough weather. The system of forced ventilation is ng extended, but with no consideration of the fact that ments need forced ventilation more than others. Com- deck 2 are being supplied with forced ventilation, while s on deck 3 which need this ventilation are put off until tments are finished. If the compartments on deck 3 lied with forced ventilation the compartments on deck ally benefit from this and at the same time there would where it is most needed. erved is of good quality, well prepared, and ample in e diet is well balanced and varied. Complaints have v; on the other hand Army organizations carried have ut exception praised the food both as to quality and al corpsmen in the transport service have seen and pes of diseases and injuries and have performed their doing probably the hardest sea duty in the history of They have seen their duties increase from taking care of the ship to also taking care of the sick from on board, or, as during our last trip, to taking care and wounded on the return trip, and have not been It is believed that an organization has been estab- ran transport 1,000 sick and wounded from France more d with less confusion and anxiety than 100 could have

been transported six months ago. This could only have been effected by an efficient system of training established by the older men in the Navy medical service greatly to be admired and respected by the younger men therein. But the men themselves have shown a spirit of willingness and heroic devotion to duty in a hitherto less known branch of the service, where their work will probably never be sufficiently appreciated. There is none of the glamor of the charge "over the top" but only the quiet, self-satisfaction of work well done, of men kept fit to carry on and of the words of praise and appreciation of their kind ministrations expressed by the Army patients out in the middle of that most desolate and comfortless of all "no man's land" the tossing, rolling ocean.

It is believed that a very strict preembarkation inspection of troops is the best protection a medical officer can have in transporting troops overseas. This inspection is just as important in bringing troops home as it is in taking them to France.

Instructions should be given to Army officers and men regarding personal sanitary precautions such as those set forth in health insurance posters and explaining conditions on board ship, length of trip, etc., so they would know what to expect when they came on board and could order their actions accordingly. At present they look forward to a pleasure trip with no responsibilities. The health insurance posters were of undoubted value after the men came on board.

The medical department of transports did not at first attract the attention that was accorded to other departments. This was due in the first place to the fact that the submarine menace necessitated good guns' crews, numerous lookouts on the alert at all times, and firemen ready to work to their utmost to furnish steam to drive the ship out of danger; and, secondly, to the fact that no one knew just how much work would fall to this department as transport duty on a large scale was a new departure for the Navy. However, the carrying of large numbers of men in such close quarters and for the long time required for passage made necessary the development of transport sanitation to a high degree of efficiency, and as a great many cases of acute disease developed as a result of crowding, the medical department was forced to work to the limit on each voyage to care for them. The response of the enlisted men in this department was wonderful. It was necessary for them to work long hours in constant danger not only of being torpedoed but also of contracting disease from the patients they were nursing, and as they had only the blue lights to work by at night and as the ship pitched and rolled in even a moderate sea, they were working under new conditions which were decidedly unfavorable. But they were not discouraged, they did not complain or shirk, but on the contrary they performed their duties in a manner that reflected very favorably upon the efficiency of the Navy, particularly upon the efficiency of the organization of the Department of Medicine and Surgery. These boys were not lauded by the press; they were not up on the decks manning the guns, they were usually out of general view going quietly about their work often isolated with contagious cases, and the way they did their bit is best learned by asking one of the thousands of sick soldiers cared for by them what they think of the Navy hospital corpsmen. The average medical department personnel of this ship consists of



ers, 1 pharmacist, and 18 hospital corpsmen. Various which the medical department played important parts in succeeding paragraphs.

ing of December 2, 1917, while the U. S. S. *Susque-* her course in a rough sea with a fierce wind blowing, apparatus containing phosphorus, stowed on the star- the after wheelhouse, ignited. A fire alarm was all hands were called to quarters.

officers and hospital corpsmen reported to the sick bay s. A first-aid party was dispatched to the scene of the men detailed where needed. The various details were ry successfully, considering the fact that only a few e crew were ever at sea before and thus far had been one occasion only as to their duties in case of such an

, being located directly under the scene of the fire, was lled with smoke and, not realizing the extent of the s immediately evacuated themselves to the passageway sick bay. They were later given blankets and quar- e comfortable place.

time other hospital corpsmen were ordered to remove es to a place where they could easily be thrown over- edical journal, health records, and all other papers con- ial value were carried to a place of safety.

"secure" had been sounded and patients were returned y. All the materials removed during the fire were

on the morning of January 1, 1918, an ammonia tank ly punctured. The gas filled the troop compartments 2 and the crew's quarters under the forecandle with pidity.

officers and hospital corpsmen were called to their first-aid party, with necessary equipment, under the of the day, was dispatched to the place of the accident. y was made ready to receive those injured or overcome ases were transferred to the sick bay in splint stretchers viously been stowed in a near-by compartment to pro- accidents. The first case received was in an uncon- suffering from asphyxia. Artificial respiration and s were resorted to without avail. From time to time e received and treated. Ambulances were alongside ates after the explosion and transported all Army cases ase hospital. A total of 129 cases, some of whom were dition, were cared for, with the loss of but one man at ther succumbed from its effects at a later date.

art of the month of September, 1918, the ship was dock at Norfolk, Va. An influenza epidemic was in e crew was immediately restricted to the ship. Plans y the medical officer by which the disease might be re- apid spread. A prophylactic treatment consisting of , 10 per cent in the eyes and nose twice each day, proved l in every way, as the cases developing in the crew pidly.

The condition of the crew was very satisfactory when a contingent of troops was brought on board for transportation to France. These men had been quartered in a camp where influenza was prevalent, and, as a matter of fact, some were at the time of their arrival in the advanced stages of pneumonia and one man was delirious. Within a short time after their arrival about 40 cases were admitted to the sick bay.

The medical officer, realizing the danger of embarking on a two weeks' voyage with an epidemic aboard, sent a letter to the commanding officer recommending that the ship not put to sea; but the ship did sail after transferring those who were already sick.

The cases continued to develop with such rapidity that very soon the sick bay could no longer accommodate them, so a troop compartment was converted into a sick-bay annex. This place was very inadequate, as the patients were so crowded, due to the close proximity of the bunks, that it was very uncomfortable for them.

During the two weeks a total of 213 cases were cared for, with the loss of but 4 cases.

The senior medical officer worked alone during the entire trip, the junior medical officers being sick at the time. This event won for him the complete confidence of every member of the crew, and all appreciated his efforts in making a good record for the ship. He was assisted by a pharmacist and 18 hospital corpsmen.

A letter commending the work of the medical officer and hospital corpsmen was forwarded to the department by the colonel commanding the troops on board. The boarding officer in France complimented the medical officer on the excellent condition of the patients transferred, saying, in substance, that they were in better condition than any thus far received.

Before the armistice was signed about 100 Army patients were returned to the States each return voyage. *This was all that could be evacuated quickly and safely in case of accident to the ship.* After the submarines were no longer a menace the sick and wounded were sent back in larger numbers, about 650 patients being carried each voyage. This increased the work of this department very much and the hospital corps complement was increased to 40. A greater number of patients than is cared for by most large civilian hospitals was now carried each voyage, and it required new organization and close cooperation with Army embarkation and debarkation officials.

After the number and kind of patients to be accommodated by the ship is determined by the Navy medical aid at the French port and the medical officer of the ship, the medical aid notifies the authorities of the base hospital at Savenay, and at an appointed time the are transported to the port in hospital trains.

The success of the system of loading is due to a plan drafted and executed by the Navy medical aid at St. Nazaire, France, which is perfect in every detail. Each patient has a tag attached to the front of his blouse, the color of which indicates the class to which he belongs, thus enabling us at a mere glance to direct him to the ward in which he will be cared for during voyage to the United States. His name, rank, organization, and diagnosis is typewritten on this card by which the Army embarkation officials check him on board.

and sandwiches are served immediately. Medical officers call in their wards and the dressing teams begin

way the task of delousing is begun, and all patients are deloused and issued clean underclothing while dressings are being sterilized. All patients are given new underclothing issued to them.

Representatives of the welfare societies move from ward to ward the day showing moving pictures, and from time to time pastries, candies, jams, and fruit, all of which is very appreciated by the returning soldier man. Underwear, socks, first aid kits, candies, pipes, tobacco, cigarettes, toilet articles are supplied in unlimited quantity by the American Red Cross through the medical officer to the returning sick and

special diet and fruits are obtained from the supply stores. Band musicians play for the sick, and this, coupled with the radio in each ward, furnishes a plentiful supply of music to make the soldier the happy-go-lucky fellow that he is. Introduction to the fine time he is to have upon his return to the United States.

Hours before arrival in port of debarkation Army and Navy medical officers have been informed by radio of the number and class of patients. At a specially constructed dock for the purpose of disembarking the ambulances are waiting, some manned by medical attendants and some by the Motor Corps girls, ready to transfer the patients to the embarkation hospital. As fast as the patients are landed over the gangways they are checked on the passenger lists by representatives of both the Army and Navy. This is accomplished quickly, as a crier shouts number and name of the patient from a tag hanging from the front of his blouse.

Work of the Navy in the big war is told the medical department. The Navy transports must be given credit for the most efficient medical work done by the Navy. They were not only doing the hardest kind of sea duty but were also doing as much work as the Army hospitals on shore.

#### WORK OF MEDICAL DEPARTMENT FOR TRANSPORTATION OF SICK AND WOUNDED FROM FRANCE TO THE UNITED STATES.

Transportation of sick and wounded from France has increased the work of the medical department of transports to such an extent that new plans had to be worked out. The outlines of a new organization for the medical department of this ship were worked out when the sick and wounded were being sent back in small numbers, so that when many hundreds were back each trip it was only necessary to secure more space in the hospital for berthing them, as the organization could expand on the basis of the care for 1,000 patients. It was decided, however, that 650 sick and wounded could be carried under the best conditions to the passengers carried.

#### COMPARTMENTS ASSIGNED FOR CARRYING PATIENTS.

To accommodate these patients all troop compartments in the after half of the ship were turned over to the medical department, furnishing five berthing compartments. From 25 to 40 stretcher cases were carried in

sick-bay bunks. Thus we had an ideal division of troop-carrying space, the entire after half of the troop-carrying space being assigned to patients while the forward half was filled with Army and Navy passengers. The two messing compartments aft furnished ample room for messing the patients and in the intervals between messing times are used for recreation spaces.

#### DETAILS OF MEDICAL DEPARTMENT PERSONNEL.

Junior medical officers are detailed as follows: One to take care of patients in the sick bay and to have charge of dressing team No. 1; one to have charge of dressing team No. 2 for troop compartments and to care for the ambulatory surgical cases in compartment D-503; the remaining two medical officers are assigned to dressing team No. 2 and to compartments D-401, D-402, D-403, and D-404, respectively. Hospital corpsmen are instructed in their duties and stations by the pharmacist during the trip to France so that when patients come on board they are waiting at their stations to receive them. A watch, quarter, and station bill posted on the bulletin board in the sick bay, which shows each hospital corpsman his detail and station at drills and clearly defines his duties in the medical department, is a means of ready reference and supplements the instruction given during the eastbound voyage. The pharmacist is in charge of hospital corps detail, and has assigned one chief pharmacist's mate in charge of stores and the dispensary, one chief pharmacist's mate in charge of all clerical work, one chief pharmacist's mate in charge of sick-bay ward and the dressing teams, and one pharmacist's mate first class in charge of patients in compartments. These men were all trained and rated on board, are experienced in the transport service, and are invaluable in their present details, which are the ones in which they have shown the most aptitude. Two pharmacist's mates are in charge of the patients' messing, with a detail of seamen for cleaning. Two hospital corpsmen are assigned to each troop compartment used for patients. One of these men is on duty at all times, and they sleep in the compartment, but are separated from the patients. These men assist the medical officer in charge of the compartment at sick call, administer treatments, are on the lookout for vermin at all times, and superintend the cleaning by a detail of seamen. They see that the patients are clean and comfortable, that they are shaved and have their hair trimmed, and that men who are crippled are assisted when moving about. Two hospital corpsmen are on night watch at all times; one man in the sick bay and one man who makes rounds through all compartments occupied by patients every half hour. There are two surgical dressing teams, each team in charge of a pharmacist's mate first class. One team works with the medical officer in charge of the sick bay patients, while the other team works with the medical officers assigned to the dressing station in troop compartments. These teams prepare and sterilize dressings and bandages throughout the eastbound voyage. At general quarters and drill the medical department personnel is concentrated with the patients so that in case of actual abandon ship the patients could be evacuated quickly. During the period of active submarine menace, stretcher carriers were detailed from other divisions to assist in evacuating patients. Two small dressing stations are provided for in other parts of the ship.

#### EMBARKATION OF PATIENTS.

The number and types of cases to be received is decided after inspection of available compartments by the medical aid at a French port and a consultation with the medical officer of the ship as to the number he is prepared to care for. As soon as the number and type of cases has been decided upon the medical officer plans their distribution in the various compartments so that before the patients come on board it has been decided just what cases and how many will be carried in each compartment. All confusion is eliminated in embarking patients at St. Nazaire due to the system of tagging and checking them used by Commander R. G. Heiner, Medical Corps, United States Navy, who is medical aid there. The patients are checked by name and number as they pass over the gangway, and the color of the tag each is wearing indicates the type of case so that all that is necessary is to give him a bill of lading which tells him the number of his compartment, of his bunk, of his mess compartment, and of his abandon-ship station which was assigned to him as soon as the number and type of cases was ascertained.

is indicated as follows:

Stretcher case in sick bay.

Requiring dressings in standees.

Requiring no dressing (Help, No. A. No help, No. B).

Tuberculosis.

Mental.

are those used for all troops. Hospital corpsmen are standing patients to their compartments and the messing details have cots ready to serve.

#### CARE OF PATIENTS.

Sick cases are redressed as soon as they have been made comfortable surroundings and as necessary after the first redressing. examined and proper treatment prescribed. Sick call is held in a compartment at 8.15 a. m. and 6 p. m. Redressings are done. Messing of patients is supervised by a pharmacist's mate and for troops' mess prepared by the supply department. The quality of the food has been very satisfactory, and has been much praised by the patients. Efforts are made to have it as palatable as possible. Crippled patients are served at mess tables in advance. Sinks for washing mess gear are kept filled with clean water and are sterilized by live steam after each meal. The ship's barbers are secured when necessary during the trip, and to improve the patients in appearance. There is a moving picture in one of the mess compartments, Victrolas have been sent to the sick bay and for the compartments, and books and magazines frequently. During an earlier trip it was noticed that canes were of help to crippled patients. This was mentioned to the Red Cross and now several dozen stout canes are carried each trip.

#### CLERICAL WORK.

Corpsmen assigned to each compartment muster their patients before embarkation, and fill out the slip which gives age, color, rate, organization, number, place, and date of birth, name, relation and address of next of kin. They then turned in to the office force where they are filed by compartments. All papers and records accompanying patients are turned over to the office force who immediately begin sorting and then file them to correspond to the slips sent up from the ship. The diagnoses are verified by medical officers and then the reports can be readily made up. An alphabetical list is made of compartments, and a number assigned to each man in sequence. 1. Tags are made out in duplicate for each patient, stating name, organization, date of admission, diagnosis, and abandonment-day before debarking one tag is attached to the front of each patient and the other to his barracks bag. Patients confined to their cots immediately after admission, so that in case of actual abandonment the attendants could tell at a glance to what boat he belongs in case he does not remember his abandon-ship station.

#### DEBARKATION OF PATIENTS IN THE UNITED STATES.

Medical officers on the pier state that they are ready to receive the ambulatory cases are lined up in their compartments according to their organizations and then pass over the gangway, where they are checked and by name. One attendant calls out the patient's name and the patient tags attached to his blouse and he is immediately checked off by the medical representatives on duplicate lists. With this system of tagging and lining up to correspond to the lists, patients can be debarked very rapidly. They can pass over the gangway. Stretcher cases and contagious cases are last. Here the debarkation is slower, due to the care exercised with the stretcher cases, but the checking is just as rapid, and each patient is waiting several minutes while Army and Navy representatives call his name through a jumbled-up list of patients. As soon as the

patient's number is called the checkers know immediately where to look for the name, and as quickly as name and number can be called they are checked off. At the same time their baggage, plainly marked by tags, is being unloaded by stevedores. All papers and records arranged in order according to the lists are then turned over to the Army medical officer and debarkation is completed.

On the fifteenth eastbound voyage of this ship as a naval transport she carried 992 Czecho-Slovak soldiers with their 37 officers, nurses, and interpreters and two American Red Cross doctors. They kept the troop spaces and mess halls assigned them in perfect order at all times. The majority of them were educated men speaking several languages and had been fighting since 1914, first in the Austrian Army, later in the Czecho-Slovak Army on the eastern front until cut off from their homes by the Russian collapse, and finally against the Bolsheviks, fighting their way through Russia and Serbia to the Pacific coast whence they were taken on transports to California.

The Red Cross doctors had charge of the medical and sanitary requirements of this force just as would have been the case with an Army contingent except in cases of serious illness when they were transferred to the ship's sick bay. Of the two insane men among the troops only one was under restraint. The other allowed at large by those responsible jumped overboard and was rescued with great difficulty. After that the need for restraint was appreciated by the physicians attached to the military contingent.

*U. S. S. Tenadores.*—The arrangement of space has been most satisfactory. On going into commission as a naval transport all standees for troops were of the wooden variety and were very unsatisfactory and insanitary. By October 7, 1918, all troop standees, with the exception of those in the after troop deck No. 216, had been replaced by the steel standees. With the folding type of steel standee much more light is afforded and they are kept very clean.

Ventilation in sick quarters is carried on by natural means. During the daytime ventilation is very good and all that could be expected. At night it is not so good because of the darkened ship and light-proof shutters. However, ventilating light-proof shutters for all rooms including the sick bay were requisitioned for and they were installed November 9, 1918. In the beginning, ventilation of troop decks forward was entirely by natural methods, which at night when the ship was darkened were inadequate, ventilation being very poor. Supply pipes and blowers driven by electric motors were installed and this insured plenty of air on all forward troop decks. The same condition existed on this deck as in the forward troop spaces. Exhaust blowers have always been in operation, but supply blowers were needed. These were installed and supply pipes distributed throughout the deck insuring plenty of air even with hatches closed.

Lighting facilities are adequate throughout the entire ship on all decks including troop decks. In the beginning there were only two small lights on each troop deck. This was very dangerous as there would be seen in the event of real abandon ship. A new system of lights was installed giving plenty of light throughout the entire troop decks, and eliminating the danger of accidents.

All fresh water for drinking purposes is obtained from ashore and stored in tanks. These tanks have been cleaned and there has been no

the water, except an occasional cloudiness remedied by filters.

of refrigeration are very good, and consist of three mechanical total daily output equivalent to 90 tons of ice.

of good quality was served to troops and they seemed satisfied. Very few and only minor complaints were made. The surgeon was on duty at the galley during mess hours. Mess tables were kept steaming hot water after each meal. Steam radiators were installed on each side of the crew's galley and the patients were required to immerse their individual aluminum mess kits in hot water. Mess kits were regularly inspected and the results in this particular was rigidly carried out.

The sick bay proper is located aft on the boat deck just forward of the mainmast. It has a wonderful location. There are 30 beds and two tiers of two. There are 14 large windows, insuring plenty of light during the day. There are two lockers for medicine and shelves for medicines in the sick bay proper. All done in one corner of the sick bay. Hot and cold running water is furnished on each side and also a large basin for washing.

Adjoining the sick bay there is a large cold storage room formerly used as a locker in the ship's bar. This is used as a refrigerator for food and serums as a sufficient degree of cold is maintained. The small room adjoining the sick bay and the refrigerator is used for a laboratory. At night during the voyage "it has been necessary to open doors and windows out to insure plenty of air. This was done every other day or night. There is no artificial method at present for heating the air, but there is no need of it, as natural forces will steam radiators furnish abundant heat.

The sick bay on the saloon deck was the only sick bay on the ship when taken over by the Navy. The ventilation was poor and the place was unfit for patients. The 18 bunks were made of iron and poorly arranged. They were torn out and replaced by folding standees of the steel type. This almost doubled the space of the compartment, at the same time affording ten times as much light while five times as much room space remained. The floor was covered with new linoleum and instead of a gloomy interior a pleasant, cheerful one was evolved. A head and stateroom in the sick bay. The isolation ward located just aft of the operating room, was also fitted with steel bunks. The operating room on the port side of the sick bay, partitioned off by bulkheads, is a sterilizing outfit for dressings and instruments is always kept in good order and instruments and appliances are sufficient for all needs. Light is furnished artificially and naturally. There are three large, full-sized windows in the operating room. The room is lighted by high power nitrogen bulbs. The room is complete.

On the third trip as a Navy ship it was considered advisable to convert the operating room so as to be prepared for handling the wounded. The room adjoining the upper sick bay was converted for this purpose. An electric instrument sterilizer was pro-

cured so that instruments might be sterilized on short notice. An operating table was placed in this room and a locker for surgical dressings and a dressing table. Light was furnished artificially by nitrogen bulbs and two large windows insured sufficient air and natural light during the day. All ambulatory cases berthed above the troop decks have been dressed in this room. A large steam sterilizer was requisitioned for and placed just outside the sick bay on the deck.

As to the transportation of wounded soldiers the following letter was forwarded to the commander Cruiser and Transport Force:

From: Senior Medical Officer.

To: Commander Cruiser and Transport Force.

Via: Official channels.

Subject: Transportation of wounded troops.

1. With the increasing number of wounded being carried back to the United States, it is requested that more cooperation in handling the men be secured.

2. A certain group of cases was asked for by the embarkation officers in Bordeaux. We asked for 30 stretcher cases, 150 to 200 dressing cases, 3 insane, and the remainder of cases up to 1,200 convalescent. We distinctly told the boarding officers that we could not handle many crutch cases on troop decks and told them not to send over 20. We were sent a total of 853 patients. Of these over 150 were crutch cases and our total number was cut down to make room for civilians and marines. Crutch cases can not be handled very easily on troop decks and there is great danger in rough weather when these men navigate about. These men have to be fed on their own deck, which is another large problem. Dressings can be managed.

3. We were also told that the wounded officers aboard would be well enough to manage the troops. The majority of the wounded officers were on crutches themselves and not fit to manage troops.

4. Patients were sent aboard the ship in a very poor manner. There was a great delay in checking the men because of the system of handling the cases. For instance, the one hundred and fifty and odd crutch cases were all mixed in with other walking cases. Then the line was broken to send stretcher cases and officers were sent a few at a time. The whole plan of grouping cases was badly mixed up. All patients were sent aboard without a diagnosis list, which caused considerable delay and rearrangement after they arrived on board. The following method of sending cases aboard ship is suggested, and I am sure will cause no delay and will insure a proper arrangement of cases and will avoid a great amount of confusion:

(a) A diagnosis list separate from the passenger list sent aboard one day, or at least a few hours before the patients arrive.

(b) Wounded officers arranged alphabetically and sent aboard in order of names.

(c) Crutch cases arranged alphabetically and sent aboard in order of names.

(d) Medical cases arranged alphabetically and sent aboard in order of names.

(e) Walking dressing cases arranged alphabetically and sent aboard in order of names.

(f) Stretcher cases arranged alphabetically and sent aboard in order of names.

(g) At least 8 or 10 officers who are physically fit in every way to manage a working detail for cleaning and policing details.

(h) A detail of 125 men for working purposes, such as galley, cleaning details, messmen, etc., under direct charge of the 10 officers. None of these to be wounded men.

(i) Three Army medical officers and 25 Army hospital corpsmen.

5. The hospital corpsmen sent this time from the Army to assist were in the majority untrained men and had had no experience whatsoever in real medical and surgical work. Their work prior to this time had been entirely sanitary work.



*A. Luckenbach.*—On the first westbound trip we were cases supposed to be ambulatory wounded. The medical officer considered a ship of this type (converted cargo carrier) unsuitable to carry wounded but as he had no orders not to carry them went aboard. Shortly afterward, upon examining the patients these men, the medical officer found that 6 of the patients were medical cases and 100 were medical cases which was not in accord with the passenger list received the night before. Every effort was made to remove the mental cases but there was no time before we returned to the hospital ashore. Guards were placed on board during the voyage to prevent their harming themselves or others. There was no serious trouble. Had this oversight by the Navy at Bordeaux not been promptly noticed it might easily have resulted in serious trouble.

Under the best conditions of the ship were good, all compartments were thoroughly and sprayed three times a day. All of them were ventilated but two. The principal criticisms to be made of troop carriers are: Iron decks are slippery for soldiers wearing hob-nail shoes; deck rails are inadequate; the ships

### SPECIAL RESEARCH.

**MENTAL WORK.**—An enormous amount of work has been done. Valuable data have been collected by the psychiatrists detailed duty at our various training camps and stations having two distinct objects: to eliminate from the service at an early stage of their career men incapable of conforming to military discipline by reason of congenital or acquired defects of the brain system, however little they may appear on the surface; to educate both the lay and medical personnel to appreciate the importance of mental and physical defects underlying irregular conduct so that greater care will be exercised (1) in the selection of recruits (2) in the administration of discipline that the Government may have due allowance made for them. Some time has been devoted, too, to the study and classification of the different abnormalities most common among the adolescents who constitute the bulk of applicants for enlistment and to the simplification of the procedure in detecting these cases at the recruiting office without detail of a specialist in nervous diseases. Lieut. R. P. Parsons, Surgeon, United States Navy, has made interesting investigations of mental defects of violators of discipline or law now under confinement in the detention training camp, Deer Island, Mass. The following gives a summary of his observations. This officer is especially interested in the study of mental defects for sea service with a view to further studies along this line. He has analyzed the histories of 1,000 deserters from the Navy and has shown the importance of vigilance at recruiting offices and the need of investigation in connection with trial and punishment of deserters in order to determine their responsibility.

.....	331
.....	238
inferiority.....	152
psychopathic state.....	100

Chronic alcoholism .....	74
Dementia precox .....	47
Cerebro-spinal syphilis; congenital and acquired .....	46
Adolescence .....	32
Manic-depressive psychosis .....	22
Epilepsy .....	20
Hysteria .....	17
Neurasthenia .....	14
Anxiety and compulsion neuroses .....	13
Paresis .....	5
Drug poisoning .....	5
Endocrinopathies .....	4
Chorea .....	3
Traumatic psychoses .....	2
Bladder neuroses .....	2
Undetermined .....	6

1, 133

Lieutenant A. L. Jacoby, Medical Corps, United States Naval Reserve Force, has studied the subject of the treatment of military offenders and written ably upon it (U. S. Nav. Med. Bull., Vol. XIII, No. 2). Of 566 prisoners under confinement at Portsmouth, N. H., for infractions of discipline and other misconduct 236 proved to have been confined in penal institutions from one to five times or to have been under restraint in institutions for the care of the insane from one to three times. These figures establish the obligation resting not only on the medical examiners but on the officers in charge of recruiting stations to investigate carefully the antecedents of applicants for enlistment. During the rush of war recruiting the time for such research is lacking but under ordinary conditions the recruiting officer should be required to give this subject more than perfunctory attention.

Lieutenant L. E. Bisch, Medical Corps, United States Naval Reserve Force, at the naval operating base, Hampton Roads, Va., after much painstaking preliminary work elaborated a scheme for the examination of recruits well illustrated by the charts used which are reproduced below with some of the results in the first 1,000 cases tested. The work of Lieutenant Bisch and his staff may be taken as typical of that carried on at other large training stations.

FORM I.

-----  
 Rate ----- Date -----  
 Race ----- Married ----- Children, m ----- f -----  
 yrs ----- City ----- Country ----- Grade ----- Prep ----- Col -----  
 ----- Avg. weekly wage -----  
 ----- Venereal -----  
 ----- Alc. and Drug -----  
 ----- Stigmata -----  
 ----- Amentia -----  
 ----- Crass ignorance ----- Illiteracy -----  
 ----- Psychiatry -----  
 -----  
 -----  
 -----

FORM I.

(Reverse side.)

.....  
 ..... Chronological age.....  
 .....

	TEST	DATE	EXR.	SUMMARY	
				Years	Months
	Preliminary test			3	
	Stanford revision			4	
	Binet-Simon			5	
				6	
				7	
				8	
				9	
				10	
				12	
				14	
				16	
				18	
				Total:	

ing examination:

back of the "Preliminary test sheet" (Form II, reverse the recruit carried with him are listed a number of descriptives." Each tester checked one or more of these cs, basing his judgment on the recruit's performance of ar test. The tests were so timed that the instruction for ormanance of any test did not take more than three minutes. possible to complete the testing of a recruit every three d at the same time give each recruit an individual test.

## FORM II.

No. ....

PSYCHIATRIC DIVISION.

Preliminary examination.

Detention Unit.

Inf.....

Sup.....

Name..... Rate..... Date.....

## 1. Knox cube:

(a) 1234.....	(e) 13243.....
(b) 1324.....	(g) 13124.....
(d) 1423.....	(h) 143124.....

Comment.....

Score:

## 2. Numbers (backwards):

(3) .....	(5) .....	9182736453
(3) .....	(5) .....	7353281964
(4) .....	(6) .....	3915846273
(4) .....	(6) .....	4691823574
		3546372819

Score:

Comment.....

## 3. Healey "A":

	Time.	No. of moves.	No. of false moves reported.
First trial:			
Second trial:			

Planfulness.....

Score:

Learning capacity.....

## 4. Comprehension:

First degree (sleepy).....	Score:
Second degree (fire).....	
Third degree (unintentional injury).....	
Fourth degree (actions v. words).....	

Held over.....

Binet.....

Disposition.....

Total score:

## FORM II.

(Reverse side.)

## REACTIONS DURING PRELIMINARY EXAMINATIONS.

	+	-		+		+	
pose			Childish		Irritable		Reactive
ing			Oafish		Resentful		Nervous
operative			Stolid		Resistive		Variable
rested			Timid		Defiant		Suggestible
ntive			Bashful		Sulky		Distracted
erful			Sensitive		Shut-in		Anxious
le			Reserved		Moody		Afraid
ful			Modest		Depressed		Fearful
berate			Frank		Despondent		Tearful
red			Jovial		Effeminate		Noelgia
			Suspicious				
ergetic			Forward		Untidy		Uncleanly
id			Overconfident				
ematic			Conceited		Self-conscious		
rough			Scornful		Self-depreciative		
cient			Boastful		Sympathy-seeking		
lligent			Boisterous				
ound			Euphoric		Abnormalities		

Confidence gained quickly

Plea of unfamiliarity

ments.....

.....

.....

## FORM III.

## PSYCHIATRIC DIVISION.

## Detention Unit.

## Neurological status.

Name \_\_\_\_\_ Rate \_\_\_\_\_ Age \_\_\_\_\_  
 Examiner \_\_\_\_\_ Date \_\_\_\_\_, 191\_\_

Syphilis \_\_\_\_\_ Chancroids \_\_\_\_\_  
 Gonorrhea \_\_\_\_\_ Enuresis, D-N \_\_\_\_\_  
 Alcohol \_\_\_\_\_ Drug addiction \_\_\_\_\_  
 Convulsions \_\_\_\_\_ Fainting or dizziness \_\_\_\_\_  
 Sensory disturbances \_\_\_\_\_ Subjective symptoms \_\_\_\_\_  
 Institution history \_\_\_\_\_  
 Neurotic history \_\_\_\_\_  
 Test words: Slurring \_\_\_\_\_, Ataxia \_\_\_\_\_, Transposition \_\_\_\_\_, Elision \_\_\_\_\_  
 Speech defect: Stuttering \_\_\_\_\_, Lispings \_\_\_\_\_, Faulty articulation \_\_\_\_\_  
 Paralysis \_\_\_\_\_, Atrophy \_\_\_\_\_, Asymmetry \_\_\_\_\_, Spasms \_\_\_\_\_  
 Pupils: Right \_\_\_\_\_, Left \_\_\_\_\_; Irregular \_\_\_\_\_, Unequal \_\_\_\_\_, Reaction to light sluggish \_\_\_\_\_  
 Absent \_\_\_\_\_  
 Nystagmus \_\_\_\_\_ Strabismus \_\_\_\_\_  
 Hyperthyroidism: Enlarged thyroid \_\_\_\_\_ Persistent tachycardia \_\_\_\_\_  
 Exophthalmos \_\_\_\_\_ General nervousness \_\_\_\_\_  
 Tremor: Coarse \_\_\_\_\_, Fine \_\_\_\_\_, Face \_\_\_\_\_, Tongue \_\_\_\_\_  
 Hands \_\_\_\_\_, Muscles \_\_\_\_\_, Intention \_\_\_\_\_  
 Patellar reflexes: Right \_\_\_\_\_, Left \_\_\_\_\_, Normal \_\_\_\_\_, Absent \_\_\_\_\_  
 Diminished \_\_\_\_\_, Exaggerated \_\_\_\_\_  
 Babinski \_\_\_\_\_ Clonus \_\_\_\_\_  
 Romberg \_\_\_\_\_ Gait \_\_\_\_\_  
 "Stigmata of degeneracy" \_\_\_\_\_

Wassermann: (1st) Date \_\_\_\_\_, Result \_\_\_\_\_ (2d) Date \_\_\_\_\_, Result \_\_\_\_\_  
 Disposition \_\_\_\_\_

The advantages of this method are: (1) Each recruit received an individual examination from each of the four men; (2) the total score represents the judgment of four different examiners and is likely to be free from individual bias; (3) while each recruit receives a personal examination, lasting some 15 minutes, it is possible to complete an examination every three minutes; (4) the fact that the recruit moves from table to table and is compelled to face a new situation each time is in itself a test of intelligence; (5) the scoring is complete at the end of the examination, and it is not necessary to score large numbers of examination sheets, as would be the case if the "group" methods of giving the tests were used.

TABLE 1 (a).—Performance of Knox cube test, tabulated with reference to success by sequence.

Successful performances ending with—						
Complete failure.	First sequence.	Second sequence.	Third sequence.	Fourth sequence.	Fifth sequence.	Sixth sequence.
4	38	152	325	298	160	23

The above table indicates that the first three sequences were performed successfully by more than 50 per cent of the entire number

only 38 cases out of a thousand were unable to progress the first sequence, 152 failed after the second sequence, were unable to perform all six sequences.

*Performance of Knox cube test, tabulated with reference to total successes.*

Total successes by sequences.					
First sequence.	Second sequence.	Third sequence.	Fourth sequence.	Fifth sequence.	Sixth sequence.
996	958	806	481	183	23

) states positively what the previous table stated negatively. It will be noted that the greatest discrepancy occurs between the third and fourth sequences.

The following table summarizes the performance by group of unselected cases.

*Performance of the digits-backwards test tabulated with reference to success by digit groups.*

Successful performances ending with—							
Three digits.	Three digits.	Four digits.	Four digits.	Five digits.	Five digits.	Six digits.	Six digits.
24	108	113	153	95	47	25	11

*Performance of digits-backwards test tabulated with reference to total successes.*

Total successes by digit groups.						
Three digits.	Four digits.	Four digits.	Five digits.	Five digits.	Six digits.	Six digits.
552	444	331	178	83	36	11

TABLE 3 (a).—Healy "A" performance possibilities.

First trial.	Second trial.
35 seconds or less.....	20 seconds or less.
Between 35 seconds and 1 minute.....	Do.
Shown after 1 minute.....	Do.
35 seconds or less.....	Over 20 seconds.
Between 35 seconds and 1 minute.....	Do.
Shown after 1 minute.....	Do.

In analysis of other experimental data it was found that out of only 225 were unable to place the blocks correctly before the minute at the first trial. This, then, may be considered

a normal performance of the test on the first trial. The following weights were given the various possibilities of this test:

TABLE 3 (b).—Healy "A" score possibilities.

Possibilities.	First trial.	Second trial.	Total score.
1.....	35 seconds or less (score 15).....	20 seconds or less (score +5).....	20
2.....	Between 35 seconds and 1 minute (score 10).....	20 seconds or less (score +5).....	15
3.....	Shown after 1 minute (score 0).....	20 seconds or less (score +5).....	5
4.....	35 seconds or less (score 15).....	Over 20 seconds (score -5).....	10
5.....	Between 35 seconds and 1 minute (score 10).....	Over 20 seconds (score -5).....	5
6.....	Shown after 1 minute (score 0).....	Over 20 seconds (score 0).....	0

The distribution of the 1,000 cases, according to the above method of scoring, is as follows:

TABLE 3 (c).—Scores of 1,000 cases of Healy "A" form board.

Scores.				
Zero.	Five.	Ten.	Fifteen.	Twenty.
64	191	55	140	550

Comprehension test. The following tabulates the raw performances on the test:

TABLE 4 (a).—Performance on comprehension test tabulated with reference to successes by "degrees."

Performances ending with—				
Complete failure.	First degree.	Second degree.	Third degree.	Fourth degree.
1	4	71	635	289

TABLE 4 (b).—Number of successes.

First degree.	Second degree.	Third degree.	Fourth degree.
999	995	924	289

Summarizing the total score for each of the four tests we have the following:

TABLE 5 (a).—Test scores.

Test:	Total score.
Knox cube.....	24
Digits backwards.....	24
Healy "A".....	20
Comprehension.....	16
Perfect score.....	84



Total scores: One thousand unselected cases<sup>1</sup> scored by the method just outlined distribute themselves as follows:

TABLE 6 (a).—*Distribution of the first thousand cases by scores.*

Number of men.	Score.	Number of men.	Score.	Number of men.	Score.
1.....	8	12.....	40	6.....	57
1.....	12	12.....	41	10.....	58
1.....	20	14.....	42	19.....	59
6.....	22	9.....	43	113.....	60
1.....	24	40.....	44	3.....	61
3.....	25	19.....	45	7.....	62
12.....	28	10.....	46	4.....	63
12.....	29	25.....	47	73.....	64
1.....	30	43.....	48	5.....	66
1.....	31	14.....	49	3.....	67
2.....	32	13.....	50	46.....	68
2.....	33	19.....	51	5.....	70
1.....	34	98.....	52	2.....	71
1.....	35	12.....	53	15.....	72
1.....	36	5.....	54	1.....	75
11.....	37	24.....	55	10.....	76
11.....	38	115.....	56	3.....	80
6.....	39				

Mean=51.41.

A second thousand cases from the same source distribute themselves as follows:

TABLE 6 (b).—*Distribution of the second thousand cases by scores.*

Number of men.	Score.	Number of men.	Score.	Number of men.	Score.
1.....	16	15.....	41	13.....	61
1.....	18	10.....	42	11.....	62
1.....	20	13.....	43	32.....	63
1.....	21	21.....	44	67.....	64
2.....	23	31.....	45	12.....	65
1.....	24	26.....	46	12.....	66
1.....	26	23.....	47	17.....	67
2.....	28	33.....	48	40.....	68
7.....	29	44.....	49	7.....	69
12.....	30	23.....	50	8.....	70
7.....	31	25.....	51	6.....	71
10.....	32	44.....	52	18.....	72
15.....	33	26.....	53	9.....	73
1.....	34	19.....	54	6.....	74
12.....	35	18.....	55	1.....	75
12.....	36	60.....	56	12.....	76
19.....	37	32.....	57	1.....	77
14.....	38	20.....	58	12.....	80
1.....	39	27.....	59	3.....	84
1.....	40	63.....	60		

Mean=53.137.

TABLE 7 (a).—*Cases surveyed in first thousand cases.*

Number surveyed from service.	Number returned to duty.	Number given Stanford revision of the Binet-Simon test.
9	12	11

<sup>1</sup>The cases composing this thousand and the cases composing the thousand in Table 6 (b) are from the detention unit and are the total scores of 2,000 recruits taken in the order of their appearance during the months August, September, and October, 1918.

The intelligence quotient and mental-age values in the 11 cases given the Stanford revision range as follows:

TABLE 7 (b).

	Case 1.	Case 2.	Case 3.	Case 4.	Case 5.	Case 6.	Case 7.	Case 8.	Case 9.	Case 10.	Case 11.
I. Q. <sup>1</sup> .....	42	55	53	56	48	51	59	57	81.5	58	52
M. A. <sup>2</sup> .....	6-9	8-10	8-6	7-9	7-9	8-2	9-5	9-1	13-10.5	9-7	8-4

<sup>1</sup> Intelligence quotient.<sup>2</sup> Mental age.

The diagnoses of the nine surveyed cases are:

TABLE 7 (c).—*Diagnoses.*

Imbecility.	Constitutional inferiority.	Constitutional psychopathic state.
5	3	1

It will be noted that there is a markedly small number of surveys because of imbecility in a group of 1,000 cases. Studies of feeble-mindedness that have been made from time to time by psychiatrists and psychologists have brought out larger percentages than were obtained in our study. This is due, in part, to the type that compose our group, and, in part, to the peculiar service situation under which surveys were made. The men who volunteer for naval service have indicated a higher mental status by the fact that they have taken the initiative themselves. The act of volunteering has indicated an inherent planfulness, an interest in their own affairs and in the future that is not typical of even the high-grade feeble-minded person. From such a group, then, we may expect a rather higher type of individual than is usually found in unselected groups of this size. Again, the small percentage of feeble-minded in our group may be explained because of the service conditions under which surveys had to be made. At the time the scores were made on the group described the war situation was such that it was necessary to conserve man power to the greatest extent possible consistent with an efficient fighting force in the Navy. Some very high-grade cases were therefore retained and given a type of duty commensurate with their intelligence.

TABLE 8 (a).—One thousand cases, armed-guard group.

Score.	Number of men.	Score.	Number of men.	Score.
17	15	45	12	63
20	4	46	102	64
24	9	47	1	65
25	22	48	1	66
28	28	49	11	67
30	10	50	110	68
32	15	51	2	70
33	62	52	7	71
34	18	53	74	72
36	7	54	2	74
37	19	55	1	75
38	94	56	45	76
39	13	57	1	77
40	2	58	2	78
41	22	59	21	80
42	107	60	11	84
43	8	61		
44	8	62		

TABLE 9.—Education-score distribution.<sup>1</sup>

School year.																Frequencies.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
						1										1
			1													0
			1													1
				1												0
					1											1
	1					1										0
	1						2	1	1							2
							1									0
																1
	2		1					1								0
	1															2
																7
																12
																7
																10
																15
																5
																12
																13
																19
																16
																6
																8
																15
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																26
																23
																33
																44
																23
																25
																44
																26
																19
																18
																60
																32
																20
																27
																63

as discussed in this section from which correlations were made are the same thousand tabulated in Table 6 (b).

TABLE 9.—*Education-score distribution—Continued.*

Scores.	School year.																Frequencies.
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
61.....							1	4	1	1	1	3	2				13
62.....						1	1		2	1	3	3				1	11
63.....				1	1	1	3	5	6	4	3	6	1			1	37
64.....				4	3	5	4	7	9	6	4	13	5	6	1		67
65.....					1	1			2	2	2	2		1			12
66.....					1	1	1		1	3	1	2	1				12
67.....					1	2	2		5	3	1	4				1	17
68.....					2	2	3	5	3	4	5	3	8	3	2		90
69.....						1	2	2		1	1	1					7
70.....							1		1	2	1	2	1				8
71.....							1	1	1		2	2					6
72.....							1	4	2	4	3	1	2		1		18
73.....				1					1	1		1		1			5
74.....									2	2	1			1			6
75.....									1								1
76.....							1	2		1	2	4		1		1	12
77.....								1		1							0
78.....																	1
79.....																	0
80.....								1	3	2	1	3		1		1	12
81.....																	0
82.....																	0
83.....																	0
84.....										1		1		1			3
Total.....	0	25	0	41	56	68	119	148	137	113	86	111	41	34	8	13	1,000

At a later date figures became available covering an exhaustive study of 5,000 recruits made by specially qualified men at the naval operating base, Hampton Roads, Va. These newly arrived recruits all underwent a rigid neurological and psychological test and yielded 290 cases demanding more prolonged consideration. Out of this reduced number 80 were considered unfit for service and recommended for discharge from the Navy. They were classified as follows:

Constitutional inferiority.....	14
Syphilis.....	14
Imbecility (morons).....	15
Epilepsy.....	9
Hysteria.....	8
Neurasthenia.....	6
Neurosis of bladder.....	6
Constitutional psychopathic state.....	2
Stammering.....	2
Stuttering.....	1
Facial paralysis.....	1
Sunstroke (chronic).....	1
Psychasthenia.....	1
Dementia paralytica.....	1
Malingering.....	1

80

Of the 290 under suspicion, therefore, 210 were sent to duty, but later 5 cases never under suspicion and 2 of those who had been held for observation and allowed to go on with training, were found defective. Of the 5 cases 1 was suspected of malingering and the others had respectively dementia praecox, epilepsy, neurosis of bladder, and manic-depressive psychosis.

The fact that only 87 out of a group of 5,000 recruits enlisted during the war period were mentally or nervously defective shows that

medical examiners at the recruiting offices was searching and well done. Of course the lads volunteering for the generally of a high type, but on the other hand the Navy, popular service, was not infrequently selected in preference drafted into the Army, and the unstable and neurotic often strongly impelled toward the service by the general public sentiment. But while these figures testify to the our medical examiners, they also emphasize the vast painstaking effort and an appreciation on the part of the men into the service of the significance of nervous

*from the annual report of the Psychiatric Unit, Naval Station, Great Lakes, Ill.*—Practically all incoming recruits and the group intelligence tests for the elimination of the defective. Five hundred and sixty-eight companies containing 95 men have been thus examined. Of these men, 7,277 or 95 per cent of the total have been recalled for complete individual examination. In these individual interviews conducted primarily as mental examinations, cases other than mental defect have been found, as shown by the following figures: mental defect, 116; or of abnormal cases, 169. This number 116 shows that 11.6 per cent of the incoming recruits have been diagnosed as mentally defective and recommended for survey. Such a diagnosis has been based only upon very clear indications. Three hundred and twenty cases in whom, after examination by the yeoman and interpreter, the doctor, the question of mental defect arose, were referred to their commanding officers for observation and reports as to their progress in military life, etc. Unless an unfavorable diagnosis was received no diagnosis was made. One hundred and sixty-four cases were referred on the group examinations, because they were defective in some way and were recommended for special instruction. In 1918, arrangements were made whereby such cases were transferred to a separate company, in which trained teachers, under the supervision of the psychiatric unit gave them systematic instruction in the details of an English education for some two months, at the end of which they were undergoing military training. Fifty-four recruits from the company of 20 have finished the course, were received by this

unit on to the routine examination of recruits, 422 cases have been examined, 164 by the provost marshal and 258 by other line officers and medical officers. Of these referred cases, 179 or 42.4 per cent, were diagnosed as abnormal. This brings the total number of cases referred to the psychiatric unit for diagnosis to 348.

main	1	Hysteria	4
fever	2	Imbecility	67
	2	Intracranial injury	1
ss	1	Malingering	4
inferiority	89	Migraine	2
psychopathic state	38	Neurasthenia	6
paralytica	2	Neuritis	1
neurosis	38	Neurosis of bladder	1
determined	8	Neurosis, traumatic	1
	31	Nostalgia	3
goiter	1	Otitis media chronica	1
	1	Pachymeningitis cerebral	1

Paralysis of nerve.....	2	Psychosis infective.....	4
Paranoid state .....	1	Psychosis hysterical .....	9
Poison, morphine chronic.....	1	Psychosis intoxication .....	1
Psychasthenia .....	3	Psychosis manic depressive .....	11
Psychosis due to organic brain disease .....	3	Stammering .....	4
Psychosis epileptic .....	5	Syphilis .....	3
		Total.....	348

**VENTILATION, ETC.**—Research of a highly useful and practical character has also been carried on under the auspices of the bureau in regard to ventilation of submarines, a special monograph having been published on the subject; the proper handling and stowing of gas cargoes bound overseas; the pathology of poison gases, etc.

#### PHYSICAL DEVELOPMENT IN THE NAVY.

Interesting studies have been made at the training stations at Great Lakes, Ill., and Pelham Bay Park, N. Y., relative to the effect of routine training and the Navy ration on physical development. Reports from Great Lakes showed that in 500 men examined on discharge from the service there had been an average increase of 5.2 pounds.

Measurements of the chest, biceps, and waist line were taken and compared with the measurements of the same men when they entered the Navy. A general average was taken, and it was found that the man going out has a chest circumference  $1\frac{1}{4}$  inches greater than when he entered. He can expand his chest an additional seven-eighths of an inch. His biceps is three-fourths of an inch larger, while his waist line has reduced three-fourths of an inch.

At Pelham Bay Park, when it was noted that in general the physical condition of men undergoing examination for discharge seemed superior to that of the recruits received at the beginning of the war, a systematic study was undertaken and it was decided to weigh carefully 1,000 men, taken in order, as furnishing a fair picture of the 11,000 released from that station.

As will be seen from reading the averages given below, nearly all the men (81.6 per cent) gained in weight, the gains running up as high as 33 pounds per individual. Even this gain in the average weight does not fairly indicate the enormous benefit that the regular life and wholesome food of the Navy has done these men physically. A great many of the men who lost the most in weight were thereby benefited physically. For instance, there was one man, a heavy-weight prize fighter, who had lost 23 pounds in weight (from 190 to 167 pounds). When asked about this great loss, he said that it had done him a great deal of good, and that he had never been in better condition, which statement was borne out by subsequent events, for one week later we read in one of the morning papers that he had won a professional prize fight. A number of men who came in soft and flabby went out hard and in good condition, although weighing less. Many others who had lost weight gave the history of just recovering from influenza, sometimes complicated by pneumonia.

By simply questioning the men who had gained or lost weight, the impression was received that those whose time had been largely

stations in England, Ireland, and Scotland gained less than those in France, and those in France less than those stationed in the United States or on our ships, but this is only an impression, as the figures were kept on this point. A large majority of these men were stationed overseas.

It is to be expected, a greater percentage of the younger men were gained, and they gained a greater amount per man. This is due to the fact that quite a number of the older men were lost on enlistment. The figures are divided into the various classes for greater accuracy of interpretation. One of the interesting things brought out is that there were so few older men; one man over 45 years of age in a thousand; one-half the men between 21 and 25 years of age.

Ages.	Gained.	Lost.	Stationary.	Total.
.....	126	7	1	144
.....	427	63	22	512
.....	195	45	16	256
.....	44	24	2	70
.....	14	4	.....	18
.....	816	143	41	1,000

men gaining weight.....	81.6
men losing weight.....	14.4
men maintaining stationary weight.....	4.0
.....	100.0

Weight of all men, 5,833 pounds.  
Length of time in service, 9 months 10 days.  
Weight of all men who gained, 8.2 pounds.  
Weight of all men who lost, 6 pounds.

*Under 21 years.*

Men examined.	Pounds.	Average, pounds.
Weight.....	1,427	10.49
.....	35	5.00
.....	.....	.....
.....	.....	.....

Length of time in service, 7 months 29 days.  
Weight of all men, 9,972 pounds.

men gaining weight.....	94.44
men losing weight.....	4.86
men maintaining stationary weight.....	.69
.....	99.99

*Ages 21 to 25 years.*

Men examined.	Pounds.	Average, pounds.
427 men gained weight.....	3,504	8.25
63 men lost weight.....	285	4.20
22 men maintained stationary weight.....		
<u>512</u>		

Average length of time in service, 7 months 18 days.

Average gain of weight of all men, 6.32 pounds.

Percentage of men gaining weight.....	83.4
Percentage of men losing weight.....	12.3
Percentage of men maintaining stationary weight.....	4.3
<u>Total.....</u>	<u>100.0</u>

*Ages 25 to 30 years.*

Men examined.	Pounds.	Average, pounds.
195 men gained weight.....	1,412	8.2
45 men lost weight.....	304	8.7
16 men maintained stationary weight.....		
<u>256</u>		

Average length of time in service, 11 months 3 days.

Average gain in weight of all men, 3.97 pounds.

Percentage of men gaining weight.....	76.17
Percentage of men losing weight.....	17.57
Percentage of men maintaining stationary weight.....	6.24
<u>Total.....</u>	<u>99.98</u>

*Ages 30 to 35 years.*

Men examined.	Pounds.	Average, pounds.
44 men gained weight.....	287	5.38
24 men lost weight.....	150	6.25
2 men maintained stationary weight.....		
<u>70</u>		

Average length of time in service, 9 months 27 days.

Average gain of weight of all men, 2.67 pounds.

Percentage of men gaining weight.....	62.80
Percentage of men losing weight.....	34.20
Percentage of men maintaining stationary weight.....	2.85
<u>Total.....</u>	<u>99.85</u>



*Ages 35 to 45 years.*

Men examined.	Pounds.	Average, pounds.
ht.....	123	8.7
.....	14	3.5

th of time in service, 11 months 10 days.

n in weight of all men, 6.04 pounds.

men gaining weight.....	78
men losing weight.....	22
.....	100

**INSTRUCTION AND REHABILITATION OF THE DISABLED.**

tion and rehabilitation of disabled sailors and marines problems. Facilities have been provided for patients of this category, both within our own service and in connection with the Surgeon General of the Army and the Federal Bureau of Vocational Education.

During the present year, arrangements were concluded with the Surgeon General of the Army whereby the facilities developed at Army hospitals for reconstruction, rehabilitation, reeducation, and fitting of artificial limbs and appliances for the disabled were made available, so that Navy patients could be admitted for treatment to these hospitals, when because of the special nature of their wounds and injuries, in the opinion of naval medical officers, suitable types for transfer to the Army were considered. The Army was required to provide special facilities for the various special forms of war injuries and to accept a large number of their personnel requiring selected forms of medical and therapeutic training.

A number of naval medical officers were selected to receive instruction in orthopedic surgery at the United States (Peter Reed) Hospital, Washington, D. C., so as to provide, at our naval hospitals, surgeons who had specialized in this kind of treatment and to more efficiently care for our wounded patients.

Patients who were transferred to Army hospitals were retained as patients on the rolls of the naval hospital from which they were transferred, they being merely carried on reports as temporarily undergoing special treatment until such time as this special treatment, including surgical treatment and maximum functional restoration, was completed and mental readjustment obtained. Upon completion of such treatment, these patients were returned to the naval hospital for further disposition.

Standing orders of naval hospitals were directed to determine in each case whether it was a suitable one for such special attention, and if not, whether the patient would probably be benefited by and what treatment provided at special Army hospitals. An Army hospital was ordered to provide the special treatment required by a given individual when determined upon, the hospital nearest to the man's

home being chosen if it met the desired requirements to properly reconstruct and reeducate the patient. Commanding officers of Army hospitals were communicated with, in order that accommodations for the reception of the patient might be provided and that a suitable conveyance might be available for his transfer at the point of arrival.

The commanding officers of Army hospitals were also informed of the name, rating, age, disease or injury, education, former employment or abilities, patient's choice of future occupation, and his need of artificial limbs. A medical survey was held to determine the condition of the patient prior to transfer. Transfer was not made until advice was received from the Army hospital. If the condition of the patient demanded it, a responsible attendant accompanied him to or from the Army hospital, no patient being transferred unless he was physically able to travel and his condition would not be materially impaired thereby.

Patients whose disability was blindness were sent to United States General Army Hospital No. 7, at Roland Park, Baltimore, Md., where special facilities were available for their care, treatment, and special training. Just prior to the end of the fiscal year these patients were discharged from the naval service, in order that they might be eligible for admission to this institution, if they so desired. This institution having been taken over by the Public Health Service, such patients now come under the provisions of the war-risk insurance act.

Rehabilitation includes vocational readaptation or training in curative workshops, adjoining or a part of a hospital, wherein the patients are treated, together with vocational readjustment to industrial and living conditions. Preliminary vocational training as a therapeutic measure may well be begun while a patient is still in the hospital, and should be initiated at the earliest possible moment. This is a medical and industrial problem of the greatest importance.

Entirely within the naval service provision is made for curative workshop vocational training under the cooperative direction of the commanding officers of naval hospitals, the commandants of navy yards, and expert representatives of the Federal Board for Vocational Education. Disabled patients are interviewed by these representatives, to learn what training for employment they want and need, which the Board has been authorized by law to provide, and what help the Board can give in finding suitable employment. The surgeon, who is familiar with the case, and the Federal Board's representative, decide upon appropriate work, the surgeon writing the prescription, as it were, and the vocational representative or adviser, with the facts in hand in each case, deciding upon the appropriate exercise, in other words, that most suitable for the man's reeducation in his former occupation, or training him preparatory to his entering his newly selected vocation. Facilities at all navy yards were carefully studied for the purpose of selecting those most adaptable for the accomplishment of the desired results, special consideration being given to adjacent hospital facilities, as well. The navy yards at Portsmouth, N. H., Boston, Mass., Philadelphia, Pa., Norfolk, Va., Charleston, S. C., and Mare Island, Cal., were selected as meeting all requirements most advantageously.

to be highly desirable that reconstruction of physical disability, the adjustment of mental state, restoration of and adaptation to former or other vocation should be initiated by the medical department during the convalescent period.

Patients who require rehabilitation may be grouped for convalescence as follows:

Those who are definitely in need of hospital treatment only—

Those who have a defect or eradicate disease.

Those who have lost function.

Those who have lost mental equilibrium.

Those who require fitting of artificial limbs, etc.

Those who are not in need of further hospital treatment:

Those who can return to active naval duty.

Those who can not return to active naval duty.

Those who are able to return to former occupation—

(aa) Without training, (bb) with training (about 80 per cent of all cases).

Those who must learn a new occupation in the light of their handicap (about 20 per cent).

Those who because of permanent damage sustained are unable to follow previous or other gainful occupation without a special training, i. e., are able to work but can not engage in competitive occupations.

Those who are permanently invalided and can do little or nothing (groups 3 and 4 are small).

As to classes A and B, presumably all patients will be in class A at first, but some will immediately be grouped in class B, and finally all will be in class B. Class B is then regrouped into (a) and (b). Those in (a) will presumably return to active duty. Of these, however, a few may require or desire shopwork to restore function or to enable them to more efficiently perform their duties. It is this small number in (a) and all of those in (b) with which we are concerned.

Those who can return to active duty receive only such attention as will restore function. Those who are eventually to be discharged from the service are carefully reviewed and by graduated steps, under the supervision of the medical officer, with the aid of the vocational adviser, are given such graded hours and work in a shop, for certain periods each day, as seem for the benefit of the patient and insuring the benefits to be derived from the work undertaken is along the man's previous trade, if possible, or along some new vocation, to the end that what the man may be preliminary to work suggested by and to be followed by the Federal board. It is not desired that men while away from the service shall perform work which, first, will accomplish the restoration of function, or benefit the defect, and, second, from the vocational standpoint.

It was given that patients will not continue to work in the shop beyond the time when it was evident to the medical officer, on the basis of the advice of the vocational adviser, that all possible benefit had been derived so far as the medical department and the vocational department were concerned.

Recreational activities at yards, where almost every form of activity was recognized as affording such an opportunity, and it was noted that they were the means of providing shop facilities.

ties for the disabled. To a certain extent it means restoration to or a reeducation in an old or new occupation of at least certain men of the artificer branches and those who have had training prior to enlistment. Restoration of function of disabled parts at least could be enhanced.

The Bureau of Medicine and Surgery furnished all medical and surgical treatment and such occupational training as was considered advisable as a therapeutic measure to patients while under treatment in the hospital in a convalescent state, much being accomplished by the cooperation of the commandants of the yards.

Prior to the adoption of any definite plan for curative workshop work, or vocational training prior to discharge, the commandants were given certain instructions by the department tending to work out a definite plan, which might be applicable to all yards, where it would be desirable to establish the training. The commandants, ascertaining from the commanding officers of the naval hospitals what was needed, made arrangements for the reception in the shops of their respective yards of individuals or groups of patients and provided access to suitable machinery and tools and various types of work which the patients might be reasonably expected to undertake satisfactorily and with advantage both to the patients and the shops. The work done in these shops by the patients was to be supervised by a representative of the industrial manager (a workman instructor), or by a vocational adviser, detailed upon request by the Federal Board for Vocational Education, who would have no authority, but only act as an adviser and supervisor in connection with what the individual patients might do, the best vocational interests of the patient at discharge being constantly kept in mind.

In carrying out any plan for the training of convalescent or discharged rehabilitated men, as hereinafter provided, the commandant is authorized to provide either a system of helper training under competent journeymen, or to utilize for the purpose an alcove or bench in a shop or a separate shop for the purpose.

The patients continue under the separate supervision and control of the commanding officer of the naval hospital as patients of the hospital, and go to the shops for a certain period each day, and perform certain tasks of benefit as a therapeutic measure, or vocational advance or asset—the carrying out of a prescription. The patients continue under medical supervision until such time as it appears that supervision is no longer necessary, and the final disposition may be made either by the return of the men to former naval duty or by discharge from the naval service to enter civil employment under the supervision of the Federal Board. Previously begun vocational education will thus be continued along the same lines either in the navy yard or shop, as hereinafter authorized, or elsewhere under the supervision of the Federal Board.

Provision was made also for a vocational apprenticeship system as a progression beyond the curative shop described above. The commandants were authorized to establish, in cooperation with the Federal Board for Vocational Education, a plan of vocational training for discharged disabled men of the Navy and Marine Corps, to be given in navy yards or shops. The men who, as patients, receive preliminary training in the curative shop while convalescing can thus continue the experience already begun. Where such training

men has been established at any navy yard adjoining a continuous process of prevocational and vocational provided in section 6 of the vocational rehabilitation ished.

mentatively established at the United States Navy Yard seemed to be the most practicable, and when approved tment was adopted for application at the aforementioned

This plan is now in operation at Portsmouth, N. H.; Charleston, S. C.; and Mare Island, Cal., and pro-

avaleascent patients may be given therapeutic training through erations and exercises in the shops of the navy yards, but us which duplicate actual productive shop conditions. A sur- medical staff of the hospital has been placed in charge of the k, and one ward in the hospital has been set aside for patients h training. The Federal Board's representative advises with ith the surgeon in charge; these two men decide upon appro- hat is to say, the surgeon writes the prescription and the er decides upon the appropriate exercises, which are then ap- surgeon. In the office of the yard is another representative of coordinator—who receives the prescription and arranges for a competent mechanic, who has also been trained as an in- Federal Board. During this period of therapeutic training, der the continuous observation of the surgeon in charge of this ements have been concluded to the satisfaction of the naval hereby men having completed their period of hospital training c training may continue to receive vocational training in a f navy yard occupations. Neither in the therapeutic phase, ational phase, is it assumed that men will necessarily become e navy yard.

*Therapeutic training which can be given.*—Because of its flexibility, ts men to be trained for short or long periods during the day, their needs and physical condition. There is no regular length ms of training are several and may include:

al restoration only.

tion.

stimulus only.

ading to vocational training on discharge.

ading to intelligent choice of occupational training on discharge. raining subsequent to discharge.—This work is carried on by the rd with the cooperation of the navy yard authorities, and any ne by the Federal Board. A sufficient number of competent n the trades, in which it seems probable that disabled men can be ven special instructors' training at the expense of the Federal e as there may be a demand for training in any of the trades nstructors should be taken on for this work. Training will be ar productive work and with regular equipment. As soon as a he stage of advancement where, in the opinion of the Federal navy yard authorities, he can be placed in the shop, he will be ill still remain under the charge of a Federal Board instructor. eprepared to continue this training until the man is competent to man's wages.

—Instructors are obtained from a list of men who, in the judg- navy yard officials, can be spared without interfering with pro-

They are approved by the shop committee as being competent rangements are made to take them off productive work only for as they are needed on instruction work. When performing the the expense is borne by the Federal Board. At any time when nstructors return to productive work in the shops. These d as instructors at the expense of the Federal Board.

ges of this plan are—

imary aim is training adapted to the therapeutic needs of indi- uction is a secondary aim.

(b) Its flexibility permits any and all kinds of work which the man should have to fit his particular case.

(c) It throws no additional burden of work, management, or organization upon the navy yard officials.

(d) It does not add to the navy yard expense or pay roll.

(e) It has the approval and hearty cooperation of representatives of navy yard officials, naval hospital officials, and representatives of the employees' organizations.

(f) Its purpose, organization, and methods of operation are such that no surplus of navy yard workmen will be created.

(g) It requires no modification of existing civil service regulations.

At the expiration of the present fiscal year, patients have shown a disinclination to either take up this training; or if they have taken it up, to continue more than a very short period of time after they started the prescribed course. When in such physical condition as to leave the hospital and attend the shops at the yards, patients become restless and are desirous of seeking their own forms of exercise, recreation, and amusement, where routine is not a requisite. Upon discharge, they are unwilling to remain in the neighborhood of navy yards, preferring to immediately return to their homes, thereafter selecting their own vocation to meet their individual fancies and abilities.

#### CARE OF THE DEAD DURING THE WAR.

At the outset of our participation in the war, upon recommendation of this bureau, the department determined to continue its policy of returning home the remains of those who should lose their lives while in service abroad, either afloat or ashore.

The commander of the United States Naval Forces Operating in European Waters was instructed accordingly, but, after careful investigation, reported that there would be great difficulty in carrying such a policy into effect, and that in France a military law existed prohibiting the transportation of bodies during the continuance of hostilities. The War Department also had been considering the question of disposition of the dead, and desired that a uniform course should be adopted by both arms of the military service. A joint conference was therefore called between Maj. Gen. W. C. Gorgas, Surgeon General, United States Army; Rear Admiral W. C. Braisted, Surgeon General, United States Navy; and Col. F. E. Lacey, jr., General Staff, United States Army, to determine what action should be taken regarding the bodies of men who should die at sea or abroad, and the result of this meeting was embodied in Articles II and III of General Order No. 392, as follows:

#### DISPOSITION OF REMAINS OF THOSE WHO DIE IN FRANCE.

(a) The remains of all officers, enlisted men, and civilian employees of the Army, Navy, and Marine Corps, who have died or who may hereafter die in France, shall be buried in France until the end of the war, when the remains shall be brought back to the United States for final interment.

(b) Such cemeterial facilities as the Army may have acquired in France shall be available to the Navy.

#### DISPOSITION OF REMAINS OF THOSE WHO DIE AT SEA.

(a) The remains of all officers, enlisted men, and civilian employees of the Army, Navy, or Marine Corps, who die on board a ship en route to or from the United States, shall be embalmed and returned to the United States on board the ship on which death occurred.

engaged in transporting troops shall be equipped with the necessary material to carry the foregoing requirement into effect.

It is agreed that except as above provided the Navy should have the policy of returning home the remains of deceased persons left the Navy with a free hand except in France, and that it should once taken to provide all of the larger Navy ships, and naval stations abroad with embalming outfits, caskets, and coffins. The services of experienced, licensed embalmers were enlisted in the Navy and Naval Reserve, and instructions were issued to all medical officers, embodying the text of the policy and directing that, except in France, the remains of deceased officers and enlisted men of the Navy and Marine Corps be returned from abroad so soon as practicable in each instance.

It is felt that its insistence upon making use of the facilities afforded by the steady stream of returning transports and cargo ships in returning home the bodies of American dead has met with approval, and has afforded to the bereaved relatives and friends the measure of comfort and consolation the value of which is estimated and more than compensates for the expenditure of material and personnel in overcoming the many difficulties.

It is not possible to give the exact numbers and locations from which dead were returned, but it permits only a partial estimate of the accomplishment, but it gives an idea of the wide scope of this work. Excluding those returned by ships and transports between the United States and Europe, the remains of deceased Navy and Marine Corps personnel have been returned from the following places, included in the zone of operations:

	Number.
in the war zone.....	251
in France.....	26
in Belgium.....	2
in Italy.....	86
in Greece.....	1
in Turkey.....	9
in Egypt.....	32
in Persia.....	4
in the Mediterranean.....	1
in the East.....	50
in the West.....	1
in the South.....	4
in the North.....	12
<b>Total.....</b>	<b>479</b>

Funeral services were made at sea.

In carrying out all plans and endeavors, the exigencies of war have been met, and interment abroad in many cases, including, of course, the remains of all officers and men of the Marine Corps who died in the service with the Army in France and Belgium. Here again, the Navy Department's concern for the preservation of the remains of the dead is shown, for, with the assistance of the Graves' Registration Service of the Army, the graves have been carefully located, attended, and most minute records kept, both at our headquarters in London and in the bureau, in order that, so far as effort and foresight might avail, the exact location and position of each body should be preserved, with a view either to

ultimate disinterment and return home or permanent burial in foreign soil. In reporting such burials to the relatives, the bureau has promised, should such action be requested, to bring back the body whenever this becomes possible. An extensive correspondence with the families of the deceased has resulted, and the bureau has now on file a specific statement in each case as to what disposition is desired. At least 95 per cent of the relatives have directed return to this country for private interment in the home burying ground or in one of the national cemeteries, and plans and preparations have been completed, through naval headquarters at London, for the disinterment, encasement, and transportation of our remaining dead from England, Scotland, Ireland, Russia, Holland, Italy, Greece, Gibraltar, Hungary, Dalmatia, Austria, and Bermuda, numbering in all 55.

The situation with regard to 366 naval and 2,800 Marine Corps dead in France and Belgium is of far greater extent and complexity, and is, moreover, closely involved with that of the dead of the Army. In August, 1918, the French Government entered into a definite compact with the United States, which provided (as desired by the French) for the interment of American military and naval dead in France during the continuance of the war, but also that "This situation will come to an end with the last departure of American troops from France. As soon as hostilities have ceased, the Government of the French Republic will examine conjointly with the American Government the measures to be taken to insure, in conformity with the French laws and police regulations regarding hygiene, the transport and return to the United States of the bodies of American soldiers or sailors interred in France." Shortly after the signing of the armistice with Germany, the French Government created a national commission for military graves to deal with all questions of inhumation, exhumation, and transportation of French, allied, and enemy dead, and requested that delegates be appointed by the United States to assist at the commission's meetings. On February 7, 1919, the following dispatch was sent to the commander United States Naval Forces Operating in European Waters:

Admiral Sims:

OPNAV 9348 (B-1). French minister of war has created national commission for military graves to determine all matters relating to inhumation, exhumation, and transportation of military dead, including questions concerning military cemeteries and pertinent affairs, and requests appointment of delegates from United States Government to assist at commission's meetings. War Department has instructed General Pershing designate Army representatives. You will select and appoint one or two delegates to represent Navy and Marine Corps interests. Department's policy is to return all dead to United States if requested by next of kin. Disposition of bodies remaining may be left to judgment of commission, but means for permanent marking and perpetual care of graves must be provided. Refer previous correspondence with department and Bureau.

08007 9348

SECNAV.

Admiral W. S. Sims, United States Navy, thereupon designated Lieut. Commander M. E. Higgins, Medical Corps, United States Navy, to represent the Navy's interests, and this officer, together with Commander Edgar Thompson and Lieut. L. W. McGrath, Medical Corps, United States Navy, has kept in close touch with the commission's activities. Under its supervision, and in cooperation with the Graves' Registration Service, United States Army, scattered



been opened, the bodies identified and removed to care-d and planned military cemeteries, reinterred in separate ording to nationality, the graves accurately marked, and te entries made on the records.

matter yet undetermined is that relating to removal of ead from France. Viewing with very natural concern of the tremendous upheaval and disturbance of a wide rritory should the various nations desire to repatriate the heir fallen, the French administration in February, 1919, l to be introduced in the national legislature prohibiting ation by railroad or road of remains of French, allied, or ers or sailors killed at the front or deceased during the eriod of three years from January 1, 1919. Due to pro- its enactment made through the American State Depart- instance of the Committee on Foreign Relations, United e, this bill has been withdrawn and it is understood that e measure has been substituted.

outcome of the conflicting interests of the two nations e be foreseen, but it may be stated positively that there is on on the part of the Navy Department to retract its e eventual return of the mortal remains of those in the arine Corps who sacrificed their lives in the service of

#### AMERICAN RED CROSS.

e personnel of the naval service, like the general public, ar with the truly colossal achievements of the American o make a review of them necessary, but it is incumbent e report once again on the many benefits conferred upon y this organization and to voice the sentiments of ap- ntertained by the entire medical department.

in the work of promoting the happiness and content- personnel, upon which in no small measure depends its ds the work done for the families and dependents of the commissioned and enlisted personnel. Living con- e been increasingly hard during the past two years and e separation, anxiety and uncertainty; of financial hard- ickness have been mitigated in no small degree by the e the Red Cross, eager to discover and prompt to succor e of need. Our hospitals have endeavored to keep the d friends of seriously ill patients informed about their t so great has been the labor of keeping up the clerical ed for the preparation of official data that other corre- ould have suffered but for this assistance from without. euate the strictly professional treatment of patients may attendance, operations, and good nursing are not always nsure the most complete and satisfactory recovery. The in bed week after week has his cares and preoccupations; o is up and about has many vacant hours on his hands, es on liberty the places of entertainment and the forms nt available for him are too often of a kind to yield rather than a blessing. Here again the representatives ources of the Red Cross are invaluable in supplementing

the work of the busy hospital staff. By friendly intercourse, by gift of books and magazines and various creature comforts, by the establishment of canteens, rest rooms, reading rooms, and recreation houses furnishing entertainments, concerts, etc., the Red Cross has ably seconded the technical work of our medical officers looking to a cure. These efforts have been extended to foreign stations and to Navy transports and to all types of vessels. Not least in their multifarious endeavors have been those directed to the benefit of the nurses and hospital corpsmen wearing themselves out in caring for the sick. The nurses' rest and recreation houses and the convalescent houses for patients built and equipped by the Red Cross have done incalculable good.

The reading and study rooms provided by the Red Cross have been stocked by the American Library Association with books and periodicals of every kind. A particularly attractive feature of the recreation program and one with distinct educational value is the exhibition of stereoscopic views of interesting places all over the world, together with descriptive books, maps, etc., and spoken words on the topics shown.

Under the tremendous stress of war and during the period of the devastating epidemic of influenza the medical department's provisions were generally adequate, but the Red Cross has been able to supplement every effort and bridge every gap. There have been frequent occasions when the bureau has had to avail itself of the various auxiliary forces in the field and foremost in promptness, liberality, and efficiency was the Red Cross. The commanding officers of our various hospitals, both here and abroad, have found the local chapters or representatives eager to help in every way and to any extent.

Following its established practice of neither soliciting nor accepting from civilian sources material or other assistance in matters for which the Government was legitimately responsible and recognizing that the Red Cross was primarily established for service in times of public calamity and widespread distress and not as a substitute for Government agencies, the bureau has been careful to ascertain in every case where generous assistance was proffered from without or help was required from within the service that a need existed and could legitimately be met and to the greatest advantage by outside agencies. War conditions often precluded the prompt receipt of needed supplies through the regular channels and in not a few instances unusual articles not contemplated under ordinary circumstances had to be immediately available. Here the Red Cross with its fine organization and varied and ample stores was of the utmost service to us. Materials so obtained in excess of requirements have been returned on the subsidence of a given emergency.

Having been appointed by the President of the United States to serve as Navy member of the executive and central committee of the American Red Cross, the association of the Medical Department of the Navy with this body has been very close. I have always had as my special representative at Red Cross headquarters a member of the medical corps, the officer so serving at present being Lieut. Commander J. T. Boone, Medical Corps, United States Navy, an officer well qualified through experience in France to understand the needs of the sailor and marine during the exigencies of the moment.

ed in my report of 1918 the organization of our base naval station units and the recruiting of the additional units required was done through the Red Cross. About 30 units were assembled in the principal cities of our country, of them furnishing two units apiece. Of the work of these units incorporated into the Navy for service at home and base hospitals detailed accounts may be found elsewhere.

Following is a list of the Navy base hospital units with their personnel organized for service abroad. When a unit was sent to the Navy a medical officer of the regular service, usually of similar category as executive, was placed in command. The purposes of military administration and organization.

HOSPITAL NO. 1, ORGANIZED AT NEW YORK, N. Y., SERVED AT BEEST, FRANCE.

DR. L. VON WEDEKIND, Medical Corps, United States Navy, commanding.  
 COMMANDER EUGENE A. VICKERY, Medical Corps, United States Navy.  
 B. BRINSMADE, Medical Corps, United States Naval Reserve  
 WILLIAM H. LOHMAN, Medical Corps, United States Naval Reserve  
 JOHN H. LONG, Medical Corps, United States Naval Reserve Force.  
 JAMES WATT, Medical Corps, United States Naval Reserve Force.  
 JOHN OLD NEXSEN, Medical Corps, United States Naval Reserve Force.  
 THOMAS C. REDFERN, Medical Corps, United States Naval Reserve  
 HENRY H. PIERSON, Medical Corps, United States Naval Reserve  
 SAMUEL P. BARTLEY, Medical Corps, United States Naval Reserve  
 RICHARD A. H. WINNE, Medical Corps, United States Navy.  
 ROBERT H. MURRAY, Medical Corps, United States Navy.  
 CLAUDE B. DUKESHIRE, Medical Corps, United States Navy.  
 ROBERT I. CRAIG, Medical Corps, United States Navy.  
 DANIEL P. PLATT, Medical Corps, United States Navy.  
 DONALD GIBSON, Medical Corps, United States Naval Reserve Force.  
 JAMES C. RUSHMORE, Medical Corps, United States Naval Reserve  
 JOHN A. QUELL, Medical Corps, United States Naval Reserve Force.  
 CHARLES EASTMOND, Medical Corps, United States Naval Reserve  
 ROBERT L. MOORE, Medical Corps, United States Naval Reserve Force.  
 ROBERT F. BARBER, Medical Corps, United States Naval Reserve  
 DOUGLAS B. PARKER, Dental Corps, United States Naval Reserve

HOSPITAL NO. 2, ORGANIZED AT SAN FRANCISCO, CAL., SERVED AT STRATHPEFFER, SCOTLAND.

ROBERT, Medical Corps, United States Navy, commanding.  
 G. SMITH, Medical Corps, United States Navy, executive.  
 DANIEL STILLMAN, Medical Corps, United States Naval Reserve  
 ROBERT W. HEWLETT, Medical Corps, United States Naval Reserve  
 THOMAS G. INMAN, Medical Corps, United States Naval Reserve

Lieutenant HARRY L. LANGMECKER, Medical Corps, United States Naval Reserve Force.  
 Lieutenant WILLIAM T. TERSE, Medical Corps, United States Naval Reserve Force.  
 Lieutenant THOMAS M. WILLIAMS, Medical Corps, United States Naval Reserve Force.  
 Lieutenant ISAAC W. THORNE, Medical Corps, United States Naval Reserve Force.  
 Lieutenant GEORGE D. BARNETT, Medical Corps, United States Naval Reserve Force.  
 Lieutenant EDMUND W. BUTLER, Medical Corps, United States Naval Reserve Force.  
 Lieutenant WILLIAM E. CHAMBERLAIN, Medical Corps, United States Naval Reserve Force.  
 Lieutenant JAMES E. REED, Jr., Medical Corps, United States Naval Reserve Force.  
 Lieutenant FRED WOLFSOHN, Dental Corps, United States Naval Reserve Force.  
 Lieutenant JOHN F. PRUETT, Medical Corps, United States Navy.  
 Lieutenant LYNN N. HART, Medical Corps, United States Navy.  
 Lieutenant WARREN D. HORNER, Medical Corps, United States Navy.  
 Lieutenant H. S. CHAPMAN, Medical Corps, United States Navy.  
 Lieutenant HERBERT R. COLEMAN, Medical Corps, United States Navy.  
 Lieutenant W. M. ALBERTY, Medical Corps, United States Navy.  
 Lieutenant PHILIP K. GILMAN, Medical Corps, United States Naval Reserve Force.  
 Lieutenant ROLAND B. TUPPER, Medical Corps, United States Naval Reserve Force.

NAVY BASE HOSPITAL NO. 3, ORGANIZED AT LOS ANGELES, CAL., SERVED AT LEITH, SCOTLAND.

Captain CHARLES M. DE VALIN, Medical Corps, United States Navy, commanding.  
 Commander JOHN T. KENNEDY, Medical Corps, United States Navy, executive.  
 Commander REA SMITH, Medical Corps, United States Naval Reserve Force.  
 Commander GUY COCHRAN, Medical Corps, United States Naval Reserve Force.  
 Lieutenant ALBERT T. CHARLTON, Medical Corps, United States Naval Reserve Force.  
 Lieutenant WILLIAM W. RICHARDSON, Medical Corps, United States Naval Reserve Force.  
 Lieutenant FRANK W. MILLER, Medical Corps, United States Naval Reserve Force.  
 Lieutenant JOSEPH L. SCHWARTZ, Medical Corps, United States Naval Reserve Force.  
 Lieutenant JOHN W. CROSSAN, Medical Corps, United States Naval Reserve Force.  
 Lieutenant JAMES R. COWAN, Medical Corps, United States Naval Reserve Force.  
 Lieutenant LEWIS B. MORTON, Medical Corps, United States Naval Reserve Force.  
 Lieutenant PHIL BOLLER, Medical Corps, United States Naval Reserve Force.  
 Lieutenant ALBERT R. DICKSON, Medical Corps, United States Naval Reserve Force.  
 Lieutenant MARK KELSEY, Dental Corps, United States Naval Reserve Force.  
 Lieutenant RALPH HOMER, Medical Corps, United States Naval Reserve Force.  
 Lieutenant EARL E. BURK, Medical Corps, United States Naval Reserve Force.  
 Lieutenant VICTOR PARKIN, Medical Corps, United States Naval Reserve Force.  
 Lieutenant JOHN C. FERBERT, Medical Corps, United States Naval Reserve Force.  
 Lieutenant WILLIAM H. OLDS, Medical Corps, United States Naval Reserve Force.  
 Lieutenant HARRY M. VOORHEES, Medical Corps, United States Naval Reserve Force.  
 Lieutenant LOUIS JOSEPHS, Medical Corps, United States Naval Reserve Force.

NAVY BASE HOSPITAL NO. 4, ORGANIZED AT PROVIDENCE, R. I., SERVED AT QUEENSTOWN, IRELAND.

Captain DUDLEY N. CARPENTER, Medical Corps, United States Navy, commanding.

Lieutenant Commander LUCIUS W. JOHNSON, Medical Corps, United States Navy, executive.

Commander GEORGE A. MATTESON, Medical Corps, United States Naval Reserve Force.

Commander HALSEY DE WOLF, Medical Corps, United States Naval Reserve Force.

Lieutenant C. S. WESTCOTT, Medical Corps, United States Naval Reserve Force.

Lieutenant LEWIS T. PORTER, Medical Corps, United States Naval Reserve Force.

Lieutenant JOSEPH C. O'CONNELL, Medical Corps, United States Naval Reserve Force.

Lieutenant LUCIUS G. KINGMAN, Medical Corps, United States Naval Reserve Force.

Lieutenant FREDERICK V. HUSSEY, Medical Corps, United States Naval Reserve Force.

Lieutenant ROLAND HAMMOND, Medical Corps, United States Naval Reserve Force.

Lieutenant ALBERT A. BARROWS, Medical Corps, United States Naval Reserve Force.

Lieutenant WILLIAM H. BUFFUM, Medical Corps, United States Naval Reserve Force.

Lieutenant E. S. WING, Medical Corps, United States Naval Reserve Force.

Lieutenant GEORGE A. ECKERT, Medical Corps, United States Naval Reserve Force.

Lieutenant FRANK H. MATHEWS, Medical Corps, United States Naval Reserve Force.

Lieutenant HENRY L. JOHNSON, Medical Corps, United States Naval Reserve Force.

Lieutenant L. S. GILPATRICK, Medical Corps, United States Naval Reserve Force.

Lieutenant PAUL C. COOK, Medical Corps, United States Naval Reserve Force.

Lieutenant WILLIAM P. BUFFUM, Medical Corps, United States Naval Reserve Force.

Lieutenant ALEXANDER M. BURGESS, Medical Corps, United States Naval Reserve Force.

Lieutenant GEORGE T. HOLT, Dental Corps, United States Naval Reserve Force.

NAVY BASE HOSPITAL NO. 5, ORGANIZED AT PHILADELPHIA, PA., SERVED AT BREST, FRANCE.

Captain H. C. CURT, Medical Corps, United States Navy, commanding.

Commander H. A. GARRISON, Medical Corps, United States Navy, executive.

Commander ROBERT C. LE CONTE, Medical Corps, United States Naval Reserve Force.

Commander JAMES E. TALLEY, Medical Corps, United States Naval Reserve Force.

Lieutenant GEORGE G. ROSS, Medical Corps, United States Naval Reserve Force.

Lieutenant B. B. V. LYON, Medical Corps, United States Naval Reserve Force.

Lieutenant HENRY A. CEABER, Medical Corps, United States Naval Reserve Force.

Lieutenant P. M. KERR, Medical Corps, United States Naval Reserve Force.

Lieutenant JACOB L. HERMAN, Medical Corps, United States Reserve Force.

Lieutenant WILLIAM HEWSON, Medical Corps, United States Naval Reserve Force.

Lieutenant G. P. MCCOUCH, Medical Corps, United States Naval Reserve Force.

Lieutenant JOHN A. HUGO, Medical Corps, United States Naval Reserve Force.

Lieutenant GEORGE D. B. DABBY, Dental Corps, United States Naval Reserve Force.

On several occasions the services of special operating teams organized at these Navy base hospitals and composed of surgeons, hospital corpsmen, and female nurses were accepted by the medical authorities of the Army for temporary duty at advanced hospitals near the front, relieving overworked Army personnel. Grateful

acknowledgment of the work done by those teams was made to Army officials in each instance.

#### WELFARE ACTIVITIES.

On April 25, 1919, a medical officer was assigned to duty with the recently organized sixth division of the Bureau of Navigation.

This organization promises to be of immense value in preserving and developing morale in the service by encouraging athletics, promoting opportunities for healthful recreation and amusement and every way enriching and ennobling the life of officers and men. A medical officer is at the head of the Social Hygiene Section. This section has as its specific objects the enlightening of Navy personnel in regard to the menace of venereal disease; the creation of a new mental attitude to the whole subject; the furtherance in its regard of the ordinary public health measures. This will be attempted by education, medical means, the enforcement of law and the coordination of many agencies working for the uplift of the personnel.

The Navy has been a pioneer in the so-called educational prophylaxis of venereal disease using the routine instruction given by medical officers at training stations and aboard ship, posters, pamphlets, moving-picture exhibits and earnest personal appeals. The advent of war with its large numerical increase of the personnel and an increased interest in the sailor on the part of the general public has given a strong impulse to these efforts and much was accomplished through the Commission on Training Camp Activities. The work will be continued, enlarged and somewhat modified in character with the Navy again working from within.

The social hygiene section under the medical officer proposes to take advantage to the full of every device to inculcate the ideas it advocates by appeals to the eye and to do so in a way which shall obviate the vulgar, revolting, and secretive elements without in any degree minimizing the seriousness of the subject. Pathological displays which can scarcely be instructive to any but medical men and so produce a feeling of disgust for the educational campaign rather than a proper appreciation of its importance will be rejected. None of the vulgar synonyms in use for the worst gonorrhea and syphilis will be employed and the pictures and posters will aim to be suggestive of the good and beautiful and have a refining influence which will displace what is vulgar and low. The power of suggestion being fully appreciated as regards evil, will be utilized in the cause of what is good.

There is only one absolute preventive of venereal disease and that is avoidance of exposure. The Navy can do no less than adopt the high standard in presenting venereal disease prophylaxis to the naval personnel. The educational crusade to establish this ideal approached by appealing to the various susceptibilities of the individual. In some instances the fear of punishment or disease is necessary, in others one must deal with sentiment and patriotic reasons, by appealing to the love of country, mother, father, sweetheart, future wives, and unborn children. Another thing appealing to the personnel is physical fitness and the necessity of vigorous manhood in order to accomplish heroic deeds for which the navy

service offers such splendid opportunity. It is believed, however, that probably the greatest means of appealing to immature manhood is to show effectively the danger wrought by venereal disease upon innocent women and children—sisters, wives, and unborn children. No man who is led by courage and ambition to enter the naval service would knowingly infect an innocent woman or child, and if there are such individuals education may be depended upon to elevate their ideals in such a manner that they may see the cowardly results of their misconduct.

It is appreciated that venereal educational propaganda must be presented in the Navy so as to meet service conditions, and with this object in view a standardized equipment for ships and shore establishments is being developed. The standardized equipments which will be issued to ships consist of two iron frames 14 by 22 inches for the display of posters. These frames will be placed on a poster board furnished by the ship, which should be secured to one of the bulkheads in a proper environment. In this connection it is considered of importance that in the future we avoid exhibiting venereal educational prophylaxis in the ships' heads and other places having an unattractive environment which is contrary to the policy of this section. As part of the ship's exhibit, metal pamphlet holders will be secured to the bulletin board between two posters. These pamphlet holders have two compartments housing approximately 300 booklets in each division. The upper part of the pamphlet box is fitted with an electric light having two windows in front for the display of glass slides, displaying for each compartment the booklet which it contains. All posters and booklets issued from this office from time to time will be standardized so as to meet the requirements of the ship's exhibit. Commanding officers will be directed to present this exhibit on board all ships.

A very careful study is being made of the type of poster, picture, and exhibit best calculated to do good and of the place, time, and method for its presentation. It is proposed to standardize these exhibits, to change and renew them as experience may suggest. There is always the danger of overdoing the presentation of any appeal or argument. Injudicious zeal has ruined many a good cause. This section will keep a careful watch on Navy sentiment in regard to this particular line of appeal and when it begins to lose its power other methods will be resorted to in the campaign of education and moral development.

It is believed that an intensified exhibit of venereal educational prophylaxis affords the advantage of determining service sentiment on this subject. It gives an opportunity to present material in an attractive environment with appropriate decorations. There is in the course of assembly material for the fleet exhibit to be given at Newport, R. I., probably during August. Every effort is being made to eliminate the "chamber of horrors" effect in this exhibit. It will consist of venereal educational literature, posters, stereomotorgraphs, and moving pictures. Every effort will be made to take advantage of such pictures as will arouse curiosity. Colored posters and illuminations will be used. In addition to stereomotorgraphs and moving pictures, eminent artists of the country, including Harrison Fisher, W. T. Benda, Albert Sterner, H. C. Christy, Franklin Booth, and others, have executed originals for this display. Appropriate selec-

tions of these pictures by American artists will be placed upon postal cards with the following printed legend: "The Navy demands a high standard of conduct. Sixth Division, Bureau of Navigation." These postal cards will be complimentary to officers and men and should have considerable effect upon home opinion, indicating that the Navy is making an effort to inculcate a high standard of moral amongst the naval personnel. The services of the artists attached to this section will be employed in arranging the decorations. The scheme of decoration will be simple but so arranged as to afford a pleasing environment. This exhibit is being developed as a portable one, and after being shown at Newport, will be routed to the large shore establishments and then to the Pacific coast for display for the Pacific Fleet.

The control of prostitution in the environs of naval establishments will be conducted by the sixth division, Bureau of Navigation, and by the aid for morale, working in conjunction with commanding and medical officers. The activities of the aid for morale will include the supervision of rooming houses and the enforcement of the hotel law. The menace of improperly conducted dance hall and the use of taxicabs and automobiles for purposes of prostitution will also come under his supervision. The policy of consistent enforcement of laws designed to repress prostitution will also be instituted. The aid for morale will enter into effective cooperation with executives, naval medical officers, local authorities, and the agencies for the enforcement of law in order to bring about satisfactory conditions in the district in which he operates.

The health of the Navy constitutes an intimate part of the section of social hygiene of the Division of Morale. In our efforts to prevent venereal diseases we must of necessity raise the general standard of conduct in the naval service and there is an intimate relation between morals and morale.

In like manner venereal diseases also have a direct influence upon the military mission, and education should bring home to the line officer that a personnel infected with a considerable number of venereal diseases will have a direct bearing upon the accomplishment of the military mission. It is along these lines that the section of social hygiene will be developed in its efforts to minimize the number of exposures amongst the naval personnel.

#### EMERGENCY HOSPITAL CONSTRUCTION.

The principal emergency hospital construction for the fiscal year 1919 consisted in completing the work begun the year before and this was accomplished by June 30, 1919, 25 bases of entirely different size and requirements being furnished with an aggregate of 50 buildings to accommodate 15,000 patients and the necessary attendant personnel—hospital corpsmen, nurses, civilian employees—to the number of 6,000 additional so that the total accommodation furnished in beds and living spaces was for 21,000 persons.

Approximately 80 per cent of the buildings are of one-story wooden construction, servicable and durable, but not representing a general ultimate permanent increase to that extent. At the large stations such as Brooklyn, N. Y.; Grays Ferry Road, Philadelphia





EMERGENCY HOSPITAL BUILDINGS - S. MAVER TRAINING STATION, GREAT LAKES, ILL.



UNITED STATES NAVAL MEDICAL SUPPLY DEPOT, BROOKLYN N. Y.

and Norfolk, Va., the buildings were two stories high and of stuccoed terra cotta to eliminate the danger of fire. All training camps were provided with dispensary facilities and at least temporary accommodation preliminary to evacuation to regular hospital establishments. Portable buildings were provided for some of the stations and in general for all overseas stations where existing buildings could not be modified to suit our purposes with reasonable adequacy at moderate cost. At Queenstown, Ireland, a 250-bed hospital was erected with hospital corps quarters and equipment complete.

The following list summarizes briefly the work of the past two years in expanding hospital facilities:

Annapolis: Six wooden buildings, of which three were two-story; one containing kitchen equipment and messing facilities for the hospital reservation.

Bumkin Island: Modifications in existing civilian hospital.

Cape May: Thirty one-story wooden buildings adjacent to the training camp, furnishing every facility for separating and treating clean and contagious cases, lodging of the personnel, etc.

Charleston: Nineteen buildings (completed in 1917) and 15 additional buildings, the former one-story, the latter two-story stuccoed, to reduce danger of fire, with a total provision for 500 persons.

Chelsea: Two sets of buildings, the first comprised 28 one-story wooden buildings segregating contagious and noncontagious cases; the second comprising nine two-story buildings with terra cotta stucco, accommodating 1,400 persons all told.

Quantico: Ten buildings remodeled and 10 new structures erected, providing for 300 patients, with necessary heating and service lines.

Wards Island: Twenty-four buildings, stuccoed to provide for 800 patients and 320 personnel.

Washington: Five wood stuccoed buildings at the naval hospital, one brick building, one wooden structure, four ward buildings two stories high, with bed facilities for 300 patients.

Great Lakes: Three buildings at the naval hospital accommodating 150 patients.

Portsmouth: Three contagious wards at the naval hospital providing for 90 patients.

The details of the various buildings changed or newly put up will be found in the reports from the individual hospitals, stations, camps, and dispensaries.

Proposals have been received for additional work at Pearl Harbor, Hawaii, to provide for 150 beds, but this work has been held up pending your contemplated visit to Honolulu.

#### **MEDICAL AND SURGICAL SUPPLIES.**

Although the armistice was signed on November 11, 1918, and actual hostilities ceased from that date, there has been no diminution in the quantities of medical supplies issued by the several supply depots during the fiscal year; in fact, the medical stores issued to ships and stations during the fiscal year 1919 were almost double the value of those issued during the preceding fiscal year. The increase in issues was due largely to the many vessels placed in commission during the year, particularly Navy transports, these vessels requiring large outfits. Furthermore, only a few of the many temporary shore activities have been discontinued, and the number of patients at these institutions was larger than at any previous time.

The new supply depots recently completed at Brooklyn and Mare Island have proven of material assistance in properly handling the increased work, and as demobilization advances will prove invaluable.

able in caring for the medical stores to be returned from ships and stations placed out of commission. The temporary supply depot established in Liverpool, England, was placed out of commission on May 1, 1919. Most of the stores were returned to the United States. The temporary supply depot established at Brest will be discontinued so soon as troopship movements cease.

Although considerable quantities of medical stores are now on hand, they are such as are regularly listed on the supply table of the medical department, and may, therefore, be issued as occasion demands. The quantities on hand are not in excess, however, of the reserve the bureau has endeavored to accumulate and maintain for several years prior to the war, and it is the intention to keep on hand a sufficient reserve supply of all articles to meet any emergency. The medical supplies from demobilized shore stations will be transferred where needed, and little, if any, material purchased during the war for this bureau will be found useless, or offered for public sale. The bureau was careful at all times not to contract for large amounts of any material unless used in considerable quantities even in peace times, and only then if such material was of a nonperishable nature, so that the same might be used in the future without having undergone deterioration.

The following is the report of the activities of the naval medical supply depot, Brooklyn, N. Y., for the fiscal year 1919:

	Number of requisitions filled.	Value.
First quarter.....	1,618	\$739,054.00
Second quarter.....	1,568	1,116,493.36
Third quarter.....	1,600	1,303,168.79
Fourth quarter.....	1,662	1,164,862.74
Total.....	6,448	4,313,578.89

#### FINANCIAL STATEMENT.

No report has been submitted during the past two years of appropriations made for the support of the Medical Department of the Navy and Marine Corps owing to the uncertainty of totals of appropriations due to the numerous deficiency estimates submitted to Congress from time to time.

The first "war appropriation" estimates were written in March, 1917, before war was declared, but after diplomatic relations with Germany had been severed, the appropriation was reported to the House of Representatives by the Committee on Appropriations in the form of an urgent deficiency bill, and was approved June 15, 1917; it was supplemental to the naval act for the fiscal year 1918 approved March 4, 1917.

Both the Committee on Appropriations and the Committee on Naval Affairs have shown the Medical Department of the Navy the greatest kindness and most considerate attention throughout the entire period of the war, and no request for additional funds has been denied either by the committees in the preparation of bills, or by the

Congress in voting the moneys. The Committee on Appropriations assured the bureau's representative at the hearings that necessary funds for the care of the sick and wounded would never be denied if the committee should be advised of the necessity. This confidence was appreciated, and in the spirit offered was accepted, and no funds were asked for in excess of actual needs and beyond existing deficiencies in the appropriations.

With the suspension of active hostilities in November, 1918, earnest efforts were made to curtail expenses in so far as was compatible with an efficient administration of affairs. The active strength of the personnel of the Navy and Marine Corps was gradually reduced, but the care of the sick continued and is continuing to a great extent to this date. For most of the period of the war, and even with our largely increased hospital bed capacity at home and abroad, it was necessary to care for thousands of patients in civil hospitals in localities where naval hospitals were not located, and at Boston, New York, Philadelphia, Washington, Fort Lyon, Mare Island, and Puget Sound, where the naval hospitals were of insufficient capacity to meet the suddenly increased demands of war. The appropriation, "Care of hospital patients," was used for defraying this expense, and though it was frequently exhausted and over-obliged, the necessary funds were always forthcoming from Congress when deficiency estimates were reported.

The activities of the bureau, and consequently the expenses, were not greatly diminished by the signing of the armistice because of the large number of accumulated sick and wounded, and of the unanticipated duty which devolved upon the Navy of bringing home the Army from Europe; this latter duty necessitated keeping in full efficiency the personnel and material of the medical departments of the transport vessels used for that purpose—this expense continues at this time, and will be a considerable expense account in the current fiscal year (1920).

The beginning of the war found the bureau with a sufficient supply on hand of medical and surgical material to increase the equipment of all naval vessels to a full war basis, and the time that elapsed before the Navy Department could obtain and convert other vessels, was sufficient at all times for the procurement of additional supplies for their medical equipment. In no single instance was any station or ship delayed in being placed in service by lack of medical supplies; earnest endeavor, wise forethought, hard work, and hearty co-operation between the bureau and the naval medical supply depots, and quick purchases through the channels prescribed by law, made this possible, while the Council of National Defense at all times offered its aid, in no single instance were purchases made, or contracts placed, except through the Bureau of Supplies and Accounts of this department.

The appropriation "Hospital construction" was carried through six successive acts of Congress to a total of more than \$22,000,000. Under the technical direction of the Bureau of Yards and Docks and the general supervision of this bureau, new hospitals were established, both at home and abroad, and most of our already established regular naval hospitals were greatly enlarged and rounded out.

At Brooklyn and Mare Island new buildings of fire-proof construction, especially adapted to their purpose, were erected for the

naval medical supply depots. A detailed statement of public works accomplished under this appropriation will be found elsewhere in this report.

*Appropriations made for the fiscal year 1918.*

Medical department:

Naval act, Mar. 4, 1917-----	\$1,121,740.00	
Deficiency act, June 15, 1917-----	3,000,000.00	
Deficiency act, June 4, 1918-----	1,500,000.00	
Deficiency act, July 8, 1918-----	2,000,000.00	
Deficiency act, Feb. 25, 1919-----	976,118.08	
		\$8,597,858.08

Contingent, medicine and surgery:

Naval act, Mar. 4, 1917-----	291,080.00	
Deficiency act, June 15, 1917-----	1,000,000.00	
Deficiency act, June 4, 1918-----	300,000.00	
Deficiency act, July 8, 1918-----	200,000.00	
Deficiency act, Feb. 25, 1919-----	222,286.40	
		2,013,366.40

Bringing home remains:

Naval act, Mar. 4, 1917-----	32,658.00	
Deficiency act, June 15, 1917-----	300,000.00	
Deficiency act, June 4, 1918-----	300,000.00	
		632,658.00

Care of hospital patients:

Deficiency act, June 15, 1917-----	3,000,000.00	
Deficiency act, Feb. 25, 1919-----	596,321.00	
		3,596,321.00

Total of all appropriations (1918)----- 14,840,203.48

*Appropriation made for the fiscal year 1919.*

Medical department:

Naval act, July 1, 1918-----	\$5,000,000	
Second deficiency appropriation act, Feb. 25, 1919--	1,000,000	
Third deficiency appropriation act, July 11, 1919--	3,000,000	
		\$9,000,000

Contingent, medicine and surgery:

Naval act, July 1, 1918-----	1,500,000	
Second deficiency appropriation act, Feb. 25, 1919--	500,000	
Third deficiency appropriation act, July 11, 1919--	750,000	
		2,750,000

Bringing home remains:

Naval act, July 1, 1918-----	350,000	
Second deficiency appropriation act, Feb. 25, 1919--	350,000	
		700,000

Care of hospital patients:

Naval act, July 1, 1918-----	4,000,000	
Second deficiency appropriation act, Feb. 25, 1919--	500,000	
Third deficiency appropriation act, July 11, 1919--	4,500,000	
		9,000,000

Total of all appropriations (1919)----- 21,450,000

*Appropriations made for the fiscal year 1920 (naval act, July 11, 1919).*

Medical department-----	\$7,500,00
Contingent, medicine and surgery-----	1,000,00
Bringing home remains-----	700,00
Care of hospital patients-----	1,000,00

Total of all appropriations (1920)----- 10,200,00

*Appropriations made for public works of the Bureau of Medicine and Surgery, but placed under the control of the Bureau of Yards and Docks.*

(Appropriation, hospital construction.)

For hospitals:

Deficiency act, June 15, 1917-----	\$1,000,000	
Deficiency act, Oct. 6, 1917-----	2,000,000	
Deficiency act, Mar. 28, 1918-----	2,750,000	
Naval act, July 1, 1918-----	10,295,000	
Deficiency act, Nov. 4, 1918-----	5,000,000	
Naval act, July 11, 1919-----	500,000	
		\$21,545,000

For naval medical supply depots:

Deficiency act, June 15, 1917-----	350,000	
Deficiency act, Nov. 4, 1918-----	200,000	
		550,000

Total amount appropriated----- 22,095,000

The deficiency act of Jan. 27, 1919, returned to the Treasury the sum of----- 1,008,742

Total amount of the above appropriations available for public works----- 21,086,258

*Summary of appropriations for the fiscal years 1918, 1919, 1920.*

Medical Department, 1918-----	\$8,597,858.08	
Medical Department, 1919-----	9,000,000.00	
Medical Department, 1920-----	7,500,000.00	
		\$25,097,858.08
Contingent, medicine and surgery, 1918-----	2,013,366.40	
Contingent, medicine and surgery, 1919-----	2,750,000.00	
Contingent, medicine and surgery, 1920-----	1,000,000.00	
		5,763,366.40
Bringing home remains, 1918-----	632,658.00	
Bringing home remains, 1919-----	700,000.00	
Bringing home remains, 1920-----	700,000.00	
		2,032,658.00
Care of hospital patients, 1918-----	3,596,321.00	
Care of hospital patients, 1919-----	9,000,000.00	
Care of hospital patients, 1920-----	1,000,000.00	
		13,596,321.00
Hospital construction (same years)-----		22,095,000.00
Total-----		68,585,203.48

**INSPECTION OF HOSPITALS AND STATIONS.**

It has been the custom for years past for the Surgeon General to make periodic inspections of the naval hospitals in so far as circumstances permitted. This plan had many drawbacks. Prolonged absence from the bureau is at all times undesirable and whenever the increased work at our hospitals made additional supervision particularly necessary there was sure to be increased demand for the chief of bureau's presence at his desk. There were other circumstances which reduced considerably the practical value of these visits.

The bureau has now arranged for two permanent inspecting officers with headquarters on the Atlantic and Pacific coasts, respectively, to devote their entire time to the study of hospital management and operation and to make regular inspections of all naval hospitals. The size, number, and importance of our naval hospitals and the increase in service activity and new construction combine to make an inspection of this nature necessary and desirable, not only with

the idea of enhancing efficiency but also to keep the bureau better informed of prevailing conditions and to enable it to pass more intelligently upon matters relating to present construction and that proposed. These inspections make for increased economy, uniformity in building and equipment, and for the discipline and efficiency of these institutions.

In the brief period since this scheme was inaugurated its advantages have been strikingly illustrated and fully warrant making the policy a permanent one. The inspecting officer on returning from a tour tabulates his observations so as to obtain a comparative idea of the various institutions visited, studies the problems presented by hospital administration in general and furnishes the bureau with data from which to perfect it. The commanding officers of these institutions not only receive suggestions but make them at the time of the inspector's visit and recommendations in regard to changes and improvements desired, contemplated or under way can be discussed on the spot with far more intelligence and expedition than by correspondence.

The great timesaver in Government business is routine, but routine is also one of the enemies of development and improvement. The orderly working of a hospital depends on routine, and yet routine favors the continuance of many minor mistakes and abuses which escape the eye of those on the ground. An outsider familiar with the best methods of wide applicability and fresh from a visit to another institution where details of management are slightly different is in a position to see and correct small defects and to initiate improvements, for in everything that concerns the sick details have vast significance.

Since the receipt of his orders Rear Admiral R. M. Kennedy, Medical Corps, United States Navy, visited and reported on all the hospitals of the Navy east of the Mississippi River, except that at Washington, D. C., and has twice visited the naval hospital at Fort Lyon, Colo., prior to July 1.

Rear Admiral A. M. D. McCormick, Medical Corps, United States Navy, detailed for duty on the Pacific coast, had not begun his inspections at the close of the fiscal year.

The following is the method of procedure in inspecting and reporting on hospitals visited: The inspecting officer will be careful to state the general condition of the hospital buildings, including roofs, cellars, corridors, stairways, ceilings, furniture, equipment, etc. He will report on the repairs that have been made since the last report, and state what recommendations should be submitted for improvement in any of the hospital buildings. He shall further state whether the heating, lighting, ventilation and general sanitary arrangement of all buildings included in the hospital grounds are satisfactory or not, and make recommendations that may be deemed advisable for their improvement; also whether the operating room and other special departments are so constructed and arranged as to meet modern requirements, especially in equipment, fittings, and furniture. He shall note whether the dietetic appointments of the hospital, the quantity and quality of the food supply, the condition of the laundry, disinfecting, and sterilizing apparatus are satisfactory and whether the methods for transportation of sick



and injured, the ambulance service, and the regulations adopted for it are satisfactory. He should submit recommendations if deemed necessary, to increase the efficiency of the hospital corps, nurse corps, and other personnel of the hospital. He shall include in his report an expression of opinion as to the discipline of the institution and whether confidence in it and its staff is assured. He shall endeavor to ascertain whether the establishment is maintained with due regard to economy, cleanliness, and the comfort and welfare of the sick.

A prescribed form to be used by inspecting officers on their visits to naval hospitals and covering all the features enumerated above has been prepared.

#### NAVAL MEDICAL EXHIBIT.

At the meeting of the American Medical Association, held at Atlantic City, N. J., June 9 to 13, 1919, the bureau conducted a small, but very complete exhibit designed to illustrate the activities of the medical department of the Navy. Models of ships showed the arrangement and equipment of spaces allotted to the sick. The installation of ship operating rooms, the type of dispensaries and cubicles used at training stations, sanitary methods, dressing stations in trenches, hospital ships, measures for the prevention of venereal disease, transportation of the disabled, the bureau's system of epidemiological study and collection of statistics were among the topics illustrated by models, charts, photographs, etc. Among the most interesting exhibits were the mobile laboratory unit from the Naval Medical School and a model of a section of the U. S. S. *Leviathan* furnished by the Tietjen & Lange Ship Building Co. The latter made clear how 10,000 Army troops were berthed, messed, and cared for on each eastbound trip of the Navy's largest transport.

At this meeting the physicians of America did honor to the medical department of the Navy in the person of the present Surgeon General, by electing him president of the American Medical Association for the coming year.

#### THE UNITED STATES NAVAL MEDICAL SCHOOL.

Two classes of medical officers have attended the school since July 1, 1918. The first class, consisting of 58 members, was under instruction from July 1 to August 24, 1918. The second class, which assembled with about 30 members but was eventually reduced to 12 members on account of separations following the signing of the armistice, was under instruction from November 25, 1918, to January 24, 1919.

On July 1, 1918, 53 hospital corpsmen were attached to the school performing duty in connection with laboratory units, in the laboratories at the school and under instruction. During the fiscal year 1919, 76 men were received and given courses of instruction in laboratory work, before being assigned to duty or transferred to other stations. On July 21, 1919, 24 hospital corpsmen were performing duty at the United States Naval Medical School.

During the fiscal year, up to April 1, 1919, when the issue of microscopes was taken over by the United States Naval Medical Sup-

ply Depot at Brooklyn, 122 requisitions for microscopical outfits were received and 119 microscopes were issued to ships and stations.

Examinations made by the clinical laboratory of sputum, blood, feces, throat cultures, etc., totaled 12,979. In addition to this, 7,625 specimens of feces sent in from ships and stations were examined for hookworm; 450 or 5.9 per cent were positive.

In the chemical laboratory in addition to the instruction incident to the school work there were made 8,156 analyses of various kinds. As the materials examined varied greatly in kind the analytical procedures ranged from simple tests to those of a very intricate and exacting nature.

The laboratory investigations of the school cover the requirements of the clinical work carried on at the United States Naval Hospital and the United States Naval Dispensary, Washington, D. C., and also throughout the service at large. Pathological specimens are constantly received from cruising ships and the remoter shore stations with requests for reports as to their character. Even when regular classes of students representing the medical personnel are not in session the naval school performs invaluable service to the medical department by its routine work and special researches.

#### UNITED STATES NAVAL DISPENSARY, WASHINGTON, D. C.

On July 1, 1918, the Naval Dispensary was still occupying quarters at the old house at 730 Seventeenth Street NW. This space was wholly inadequate but the work was being carried on as well as possible under such adverse conditions. It was practically impossible to do any dental work at that time and it also had become necessary to refer the major part of all eye, ear, nose, and throat work to the United States Naval Hospital.

Transfer to the space finally assigned in the building known as Corcoran Courts was going on very slowly until the outbreak of influenza in October. Three shifts and Sunday work was then authorized and the move was rapidly accomplished. On moving into Corcoran Courts a new organization for the dispensary was developed based on the principle of group medicine, with sections, an experienced officer being in charge of each one. These various sections were the dental, the eye, ear, nose, and throat, the section for women and children, medical section, the section of gynecology and obstetrics, the operative section which was conducted in conjunction with Commander H. F. Strine, Medical Corps, United States Navy.

Medical consultations and special laboratory work have been conducted with the aid of Rear Admiral E. R. Stitt, Medical Corps, United States Navy, and his assistants. Other sections were those on skin and diseases of the nervous system. Special sections were organized for files and records, another for dispensary and storeroom.

On April 26, 1919, the Naval Dispensary was moved to the ground floor of the south end of the new Navy Building, where offices and waiting rooms are provided for medical officers and patients.

The dental section occupies four operating rooms, a dark room for developing X-ray pictures, a laboratory, and waiting room. The laboratory was installed by the Bureau of Medicine and Surgery to facilitate reconstruction work for marines and sailors wounded in action and is provided with an excellent X-ray apparatus.

The consulting staff occupies six offices; there are two recovery rooms, one for men and one for women; an examining room for women patients; a minor surgery operating room; the special rooms for the eye, ear, nose, and throat, consisting of dark rooms for eye work, etc., operating rooms, and a general office, all admirably planned by Commander G. B. Tribble, Medical Corps, United States Navy; rest rooms for nurses and attendants; fully equipped dispensary, storerooms, and linen rooms.

On July 1, 1918, the dispensary operated two Ford ambulances for house calls made by the attending surgeons. During the epidemic of influenza as many as 10 motor vehicles were used, some loaned by the Secretary of the Navy, others being the property of the doctors themselves. In November, 1918, a motor ambulance was purchased and a small garage has been built for it near the ninth wing of the Navy Department. Five automobiles besides the ambulance are now used by the dispensary and four vehicles are regarded as the minimum number required for the prompt and satisfactory dispatch of business. Their motors are all of the less expensive makes. Commander H. F. Strine has performed 242 operations on members of officers' families or yeomen (f) who came to the dispensary as patients. None of them were patients at the United States Naval Hospital. The bulk of the X-ray work was done at the Georgetown University Hospital by Lieut. S. J. Seckelman, Medical Corps, United States Navy, who has made 536 X-ray examinations for dispensary patients, and his work is of a high order.

Commander J. P. Haynes, Medical Corps, United States Navy, has paid 4,063 house calls and held 1,591 office treatments or consultations.

Commander G. B. Tribble, Medical Corps, United States Navy, found it impossible to carry out satisfactorily at the old dispensary building the greatly increased work and so limited the cases treated there to emergencies and all other patients were seen at his office at the United States Naval Hospital. In the present expanded quarters as many as 150 patients have been attended to during the course of a day.

It is not believed that any establishment has superior equipment for dispensary work in this specialty. As soon as the need has been felt, or lack of any essential noted, it has been supplied. The excessive number of routine treatments and refractions has prevented the full development of some of the investigations determined upon. With the expected decrease in the number of patients that will accompany demobilization it is hoped to follow out more thoroughly certain important researches. Particularly desirable is the study of dark adaptation in relation to the relative ability of otherwise normal individuals to stand night watches at sea. A system of treatment booths, several chairs for refraction, an emergency operating room and dressing room permit the simultaneous treatment of three or four patients. Cases are not allowed to accumulate, for it has been found that nothing adds to confusion more than a large number discontentedly waiting for treatment. A system of appointments for other than routine cases has been carried out as far as circumstances would allow.

Cases necessitating operation, if belonging to yeomen (f), have been transferred to Georgetown University Hospital, where a con-

tract for their maintenance has been in effect for the past fiscal year. In this hospital on the Navy side, in the eye, ear, nose, and throat division 240 operations have been performed by medical officers attached to this section. Families of officers and men elect the hospital at which they wish to be operated upon, the greater number going to the Emergency, where there were 80 operations in this specialty. At the Episcopal Eye and Ear there were 16 operations. In addition many operations requiring only local anesthesia were performed in the eye department of the naval hospital, and should be classed properly as work coming through, and a part of the Naval Dispensary, especially since they were carried on the dispensary sick list. Officers and men requiring operations were transferred to the naval hospital and operated upon by officers attached to both the dispensary and hospital, in this way securing continuity of treatment and lessening the sick days since coordination of effort could be secured and the delay of waiting for operation be avoided. Close cooperation with the other branches of the dispensary insuring complete physical examination, thorough laboratory examination at the United States Naval Medical School, and utilization of the X-ray departments of the hospital and dispensary have made possible a study and knowledge of doubtful cases that can not be excelled in a similar establishment, and so far have reduced operation risk to a minimum, and have prevented any outbreak of diphtheria or similar contagion.

During the spring and summer months an important part of the work of this department has been the examination of candidates for the Naval Academy and reexamination of rejected candidates. This work is very difficult, requires the most exact and painstaking effort, and in addition a degree of forbearance and tact which is most exhausting. Every effort is made to reconcile the contradictory results found in the reports of civilian specialists contrasted with the results of the official examinations. Fortunately, fewer points of conflict, considering the great increase in the number of candidates have been encountered than during former years, and the professional relations of this department with the local specialists have been most pleasant and harmonious.

In addition to the greater amount of work performed, and as a corollary to it, young medical officers have been assigned as assistants for instruction. Before the armistice and for a short time afterwards reserve officers with special training were detailed to this department and rendered very valuable service. The abundance of work and the wide variety of clinical conditions make it possible for younger medical officers to secure experience and training here in this specialty and this feature is one that can be developed to a greater degree when conditions are more normal and time can be found for systematic instruction.

Lieut. Commander C. J. Holeman, Medical Corps, United States Navy, on September 1, 1919, assumed charge as visiting officer of the naval patients at Georgetown University Hospital. At that time by virtue of existing contract, patients both male and female were treated in small wards or rooms by the medical officer admitting them.

When in October, 1918, the epidemic of influenza swept the city this method of caring for the reservists stationed here became inad-

quate. All male patients requiring hospital treatment were sent to the naval hospital, while the women were sent to Georgetown. As the number of patients rose rapidly the equipment and facilities of Georgetown Hospital were taxed to the utmost and the deepest gratitude toward the nursing sisters of that hospital is felt by those charged with the care of these patients for their untiring efforts in the early days of the epidemic. The second floor of Riggs Annex of the hospital was set aside immediately and shortly afterwards a large ward on the first floor of the same building; then as rapidly as one ward filled a new ward, classroom, or lecture room was taken over and equipped. Navy cots or beds and bedding were always procured by the commanding officer of the dispensary ahead of the necessity for them, so that at no time was it necessary to delay admission of a patient nor to require a patient to sleep on the floor.

The nursing situation at first met by the Georgetown Hospital force, augmented by one Navy nurse and one Red Cross volunteer, supplemented by five hospital corpsmen, was greatly relieved by hiring five civilian nurses and the reporting of seven Navy nurses on October 4; later this number was increased until the naval establishment at Georgetown numbered 22 nurses and 14 hospital corpsmen. In addition to the visiting medical officer, there were detailed two medical officers to act as internes, Lieuts. Wright and Lasater, and Lieut. Horrigan's services were always available, the latter being an interne of the hospital.

The epidemic abated more slowly than it arose, so that gradual contraction of the force was possible, until the last nurses and hospital corpsmen were detached on May 29. On the work done by the junior officers and nurses no comment is necessary; they discharged their duties nobly under the early adverse as well as later favorable conditions.

The total number of cases treated for influenza at the Georgetown University Hospital was 541. The most important lesson regarding influenza learned by the experience at Georgetown was the undoubted value of early hospitalization.

In addition to the work at Georgetown during the period covered by this report, 1,603 office calls and 1,689 outside calls have been attended to.

Lieut. Commander J. A. Mahoney, Dental Corps, United States Navy, reports that on moving into Corcoran Court four new equipments were installed and listed as offices Nos. 1, 2, 3, and 4. Efficient dental officers were assigned to duty, and the result has been a great improvement in the service rendered under severe service conditions. Relief has been afforded to a great number suffering from acute infection. A large number of teeth have been preserved and restored to a healthy condition, thus immediately returning to duty many cases that were previously carried for a long time on the sick list.

Focal infections are receiving greater recognition as the primary cause of such systematic disease, and owing to this fact and because proper dentistry can not be done without the use of the X-ray, a machine of the Wappler type was installed and has given invaluable service. The demand at present for this work is very great, and over 2,000 radiographs have been taken during the last nine months. On a

conservative estimate, over 40 per cent of the devitalized teeth radiographed showed translucent areas or abscessed condition on the roots.

On moving into the new quarters in the Navy Building a dental laboratory was installed to make artificial restoration of teeth in the line of prosthetic work for men wounded overseas, or otherwise strictly line-of-duty cases. So far, over 20 bridges, ranging from four to nine teeth, and four plates have been made. On a rough estimate the saving to the bureau on these few cases amounts to over \$1,600.

To facilitate the treatment of the personnel and interfere as little as possible with their work, and to keep things moving in an orderly manner, the following routine has been established: The time from 9 to 9.30 is devoted to necessary emergency cases of an urgent character and the remainder of the day is taken up with return appointments and treatments, the intention being to allow an average of 30 minutes for each appointment.

Supplies are indexed and accounted for through a card index system. Upon receipt they are checked against the requisition, and all nonexpendable items are listed on stock cards printed for the purpose. Expendable articles are kept in a supply room and issued as needed, checkage from time to time and requisition on the supply depot being made when necessary.

The operations and treatments given at this dispensary during the year total 9,777 cases.

Lieut. Commander E. P. Copeland, Medical Corps, United States Naval Reserve Force, has been at the head of the medical and pediatric section.

Lieut. J. J. Mundell, Medical Corps, United States Navy, in charge of the section of obstetrics and gynecology, reports 1,445 house visits, 1,355 office visits, 41 gynecological operations, and 34 confinements attended.

Chief Pharmacist L. W. Rider, United States Navy, has charge of the pharmaceutical section and reports that the number of prescriptions compounded was 49,640 or a daily average of 136. The installation of an electric tablet-triturate machine permits of manufacturing 100 tablets of from 1 to 10 grains per minute with great saving of time and money.

Chief Nurse Anne K. Harkins, United States Navy, has under her at present nine Navy nurses and estimates that this number will continue to be fully occupied in spite of the disenrollment of women from the service because of the large number of women still employed in the building.

Chief Pharmacist F. D. Mears, United States Navy, has charge of the records and files, a very important and difficult duty. At the beginning of the year the dispensary was handling between 300 and 400 patients and the clerical work involved was huge. It was eventually necessary to enlarge his staff to two members of the hospital corps, two typists and three file clerks. Even with such a force they were constantly under the necessity of working after hours to make out the morning reports of sick (there were from 500 to 600 names on the list daily during the height of the influenza epidemic), to handle the requisitions and public bills and to write up the health records.

Capt. J. B. Dennis, Medical Corps, United States Navy, reports enthusiastically on the skill and faithfulness of his subordinates and summarizes the work done as follows:

Patients treated in the dispensary.....	51,346
Outside calls by all medical officers.....	18,607
Patients admitted to Georgetown Hospital.....	937
Deaths among Regulars, both Navy and Marine Corps, and Reserve Force.....	15
Patients transferred to naval hospital.....	920
Invalided from the service.....	51
Ambulance calls.....	524
Requisitions prepared.....	65
Public bills prepared.....	182
Prescriptions filled.....	40,640

#### DIVISION OF PHYSICAL REQUIREMENTS AND MEDICAL RECORDS.

This division is composed of three sections and is administered by the chief of the division and two assistants.

The activities of the division were greatly increased by the war and there has been no diminution in the work as yet since the signing of the armistice. This increase in the activities of the division was brought about by the great increase in the personnel of the Navy and Marine Corps and the consequent greater number of requests for waivers of physical disabilities; the greater number of admissions of patients to the sick list; the increase in medical surveys and discharges from the service for physical disability, death, etc.

Before the commencement of the war the entire work of the division was carried on by 9 officers and clerks; but this force soon had to be increased to over 60 in order to take care of the increased volume of work required of it.

The section on statistics was formerly included in this division; but when the division of preventive medicine was established, statistics were taken over by that division. Even after releasing this section, the work and personnel of the division was about six times as great as formerly. Since the Bureau of Medicine and Surgery moved into the Navy Building on B Street, the accommodations for the division have been ample and there is space for further expansion when this becomes necessary on account of the increase in the number of medical records of officers and men of the Navy and Marine Corps, which are rapidly accumulating.

*Section on policy and commissioned personnel.*—In addition to the general supervision of the division, the chief of the division has personal charge of this section, which includes the consideration of:

First. All boards of Inquest, courts of inquiry, adjudications of line of duty and misconduct.

Second. Physical examinations, promotions and retirements of officers.

Third. Surveys of officers and gratuities to be paid by the Bureau of Supplies and Accounts upon termination of service.

Fourth. Miscellaneous correspondence and questions relative to care and treatment and physical conditions of personnel.

The miscellaneous correspondence has grown so that it takes almost the entire time of one medical officer. There are numerous letters from Senators, Representatives, and others in the interest of officers and men of the Navy and Marine Corps which have to be given careful consideration and answered. The adjudication of questions of

line of duty and misconduct and the determination of the physical fitness of recruits are matters of importance and take a great deal of time and care. The determination of the physical fitness of candidates for the Naval Academy and of midshipmen annually has to be handled very carefully in order that poor material may not be admitted and the expense of their education borne by the Government without an adequate return for it. The findings of boards of medical examiners for appointments and promotions have to be gone into very carefully before recommendation is made. The physical fitness of the personnel depends upon the skill and caution with which officers and men are selected by the medical officers and reviewed by this division. Retirements, discharges, and disenrollments have to be given the closest scrutiny in order that injustice may not be done to either the individual or the Government.

Great care and accuracy are necessary in copying medical histories for the use of examining and retiring boards and for the Bureau of War Risk Insurance and the Federal Board for Vocational Education as all claims against the Government for compensation are adjudicated upon the facts contained in these medical histories.

*Section on physical requirements of enlisted personnel.*—One assistant has charge of this section, which includes the consideration of:

First. Medical surveys of all enlisted personnel.

Second. Reports of death and reports of rejections for enlistment.

Third. Physical requirements of the nurse corps.

Fourth. Data as to disability for the Bureau of War Risk Insurance and the Federal Board for Vocational Education in adjudicating claims for compensation, care and treatment, and vocational training.

In February, 1919, the section on physical requirements of enlisted personnel took over that portion of the Vocational Education Board's work which related to the actual percentage rating of physical disabilities existing in the officer and enlisted personnel of the Navy and Marine Corps, such disabilities being acquired subsequent to their affiliation with the service. The actual rating is determined by mature consideration of the body of the report of medical survey and all available information, health records, reports of special boards, etc. In the beginning an attempt was made to give a definite percentage rating but this was abandoned as it appeared to be more just to the man to have the original board of survey give the rating, for reasons that are obvious. The difficulties which presented themselves in the beginning were many and only by cooperation with the Vocational Board's representative were these difficulties overcome. At the present time this section is acting upon an average of 200 cases daily, and many times this figure has reached 500 per day. The plan of giving a rating of 10 per cent or over to the cases entitled to compensation and a rating of under 10 per cent to the doubtful cases and those not so entitled has worked out very well. The action taken in the bureau in this respect is not final as each case is again considered by the medical board of the Vocational Education Board. In the early months of this work there appeared to be some misunderstanding among the medical officers as to the class of injuries which were to be given a disability rating. The intent of the law covering this was to rate only those cases in which disability was incurred



while actually in the service and on active duty and not those cases in which the disability existed prior to enlistment.

Rejection reports of recruits for enlistment in the Navy and Marine Corps have steadily decreased from 500 per day during the early months of the war to about 15 per day. It has been observed that it is not a good policy to accept a recruit for enlistment who has any degree of flat feet, and particularly when the applicant is under 20 years of age. Varicocele is second on the list of defects that this division has been requested to act upon, and it has also been observed to be doubtful policy to accept these men when the varicocele is large and the applicant under 20 years of age. There are countless cases of all kinds that have been rejected, and it is believed with advantage to the service.

In addition to giving a rating for disability, this section acts upon reports of medical survey for the officer and enlisted personnel. The number of surveys acted upon has decreased from 500 per day to about 80 per day. Rejection reports for the Navy nurse corps and the American Red Cross are submitted by examining boards wherever the applicants may be examined. In many instances the examinations are made by civilian medical men, and due allowances must be made for variations in opinion as to physical disqualifications and the adaptability of applicants for the service.

*Section on medical records.*—One assistant has charge of this section, which includes the consideration of:

First. Health records and personal files.

Second. Casualty reports and lists.

Third. Pension and war-risk certificates.

Fourth. Data for examining, promotion, selection, and retiring boards.

Fifth. Library and medical history books and journals of ships.

Probably on no other branch of the bureau's activities during 1917, 1918, and the first half of 1919 has the work fallen more heavily than in the personnel files and medical history section, where in individual jackets are filed the various reports bearing on the physical condition of the members of the Navy and Marine Corps, male and female.

The increased number of persons in the service called for an increase in the number of physical rejection reports, surveys, reports of death, health records, and lead to a great deal of correspondence by letter and telegram relative to some one person which necessitated the frequent removal of a jacket and its return and the making of thousands of new jackets. This situation entailed an increase in the clerical force of the division, which was obtained through the agency of yeomen (f), and during the training of this force inexperience, lack of time for proper training, and carelessness, together with frequent changes of those coming and going, occasioned many mistakes such as misplacing jackets in the alphabetic files and placing papers in the wrong jackets. To correct this evil it was found necessary to change the system of filing and to establish a checking and reviewing system and this is now being made by adopting a numerical jacket arrangement together with an alphabetic card index devised and known as the "Library Bureau Automatic Index." This in conjunction with a reviewing system for the contents of the jackets is detecting numerous duplications and the many

errors of the older straight alphabetical method of filing are gradually being eliminated. Many months will be required to consummate this change of system, owing to a lack of sufficient clerical force and due to the fact that the work must be carried on in addition to the routine duties of the division.

About seven-eighths of the clerical force of the division is attached to this section.

*Medical histories.*—Medical histories for pension purposes have greatly diminished, but the requirements of the Bureau of War Risk Insurance of the Treasury Department, which has taken its place, far exceeds any previous requirements of the Bureau of Pensions. This, however, is only natural in view of recent war activities. In this same connection the increased demands made on the bureau for extracts from the medical records and for copies of reports of death and disabilities for official, legal, and reference purposes by other Government departments and insurance and beneficial organizations has taxed this division of the bureau to a point which at times, as at this writing, renders it impossible to make prompt replies.

The furnishing of medical history for boards on promotion and retirement of officers has grown apace with the increase of this class of personnel, but the most embarrassing feature for this kind of history is in connection with the board on selection which requires the writing of a complete record, once if not oftener during the year, for every officer of the line and staff whose name may be considered in connection with the selection feature for promotion. So far, by unusual efforts, the bureau has been able to meet the requirements, but not without sacrificing all other work in this division.

*Casualty reports.*—The late war has thrown upon this section the necessity for the establishing of a desk for the recording of casualties of all kinds due to actual combat and ordinary causes. This desk is charged with running down all unusual casualties which occur, in order that as much information as possible may be obtained in the individual case to reply to the many requests for information that come in, and when the Navy is again on a peace footing this information will be written in full and bound in a book containing a chronological list as well as an alphabetical list of names, rates, cause, and dates of such casualties.

#### DIVISION OF PUBLICATIONS.

One of the principal functions of this division is to collect and disseminate among the personnel of the medical department (medical and dental officers, hospital corpsmen, and female nurses), and more particularly for the benefit of those serving aboard ship or at remote stations abroad, information regarding professional advancement as given in the medical journals of America and Europe; and to publish reports, suggestions, clinical notes, and special articles having direct bearing on the medicine, surgery, and nursing of the navy service and on the organization and administration of naval hospitals, hospital ships, and the medical departments of military expeditions and landing parties, cruising vessels, and shore establishments, etc.

For 13 years the publication of the United States Naval Medical Bulletin has been the medium for imparting these data to the medical

personnel, and its general usefulness may be gathered from the fact that after the medical department has been supplied the remainder of each edition does not suffice to meet the demands for it made by the medical public at large. Most scientific societies, laboratories, schools, and medical libraries in America, and not a few abroad carefully preserve and bind the copies received.

A certain proportion of the material is intended to serve for record and future reference rather than for immediate reading, and the details of organization of a hospital or training camp are eagerly referred to when a medical officer is assigned for the first time to such duty.

The greatly enlarged clinical field afforded by the war has been of material advantage to the Bulletin, and the officers of the Reserve Corps have contributed very earnestly to the support of the publication. As we return to a peace basis medical officers are reminded that their cooperation is indispensable to the maintenance of the Bulletin at its present high standard. While the bureau has never wished to assert its first claim to articles compiled from official sources or from the material and facilities afforded by the service, it does desire that medical officers will give their best to the Bulletin, reminding them that, while its circulation is small compared to that of publications dependent for success on large sales, its mailing list is a select one, every copy going to a physician of special education and training, and to the most representative bodies of physicians in the country.

The Supplement to the United States Naval Medical Bulletin published especially for the Hospital Corps of the Navy was begun at the suggestion of the chief of the division of publications in 1918 and has proved of great value in the education and training of that organization. Both the Bulletin and the Supplement are illustrated quarterly publications, annual subscriptions for which should be sent direct by money order or in cash (\$1 and \$0.60, respectively) to the Superintendent of Documents, Government Printing Office, Washington, D. C.

The division of publications is charged with the collection and arrangement of data for the Surgeon General's annual report and with the preparation of special pamphlets and documents to inform and develop the personnel as the need for them arises. In January of this year a comprehensive Report on the Medical and Surgical Developments of the War, prepared by Lieutenant Commander W. S. Bainbridge, Medical Reserve Corps, United States Navy, was printed as an extra number of the Bulletin and had wide distribution. Special thanks are due to the distinguished surgeon, Dr. P. Chutro, for his valuable contribution on the subject of cranioplasties which appeared for the first time in this report. The Bureau published during the war a valuable series of monographs on gas defense, submarine ventilation, and kindred topics, largely confidential in character, prepared by its experts in these branches, for circulation to officers of the service. A revised drill manual for the hospital corps is now being prepared for issue.

The division of publications keeps in touch with the medical publishers of the country with a view to selecting and adopting for service use the best professional books as they appear.

A periodical and pamphlet library bearing on sanitation and medico-military matters is being slowly collected by this division for the special convenience of officers on duty in the bureau, though from time to time papers are loaned to officers conducting research elsewhere. This is in addition to its reference library of over 500 medical volumes.

The division devotes a considerable amount of time to assisting those who write from all over the country for information regarding various phases of the medical activities of the Navy.

#### FORCE AFLOAT.

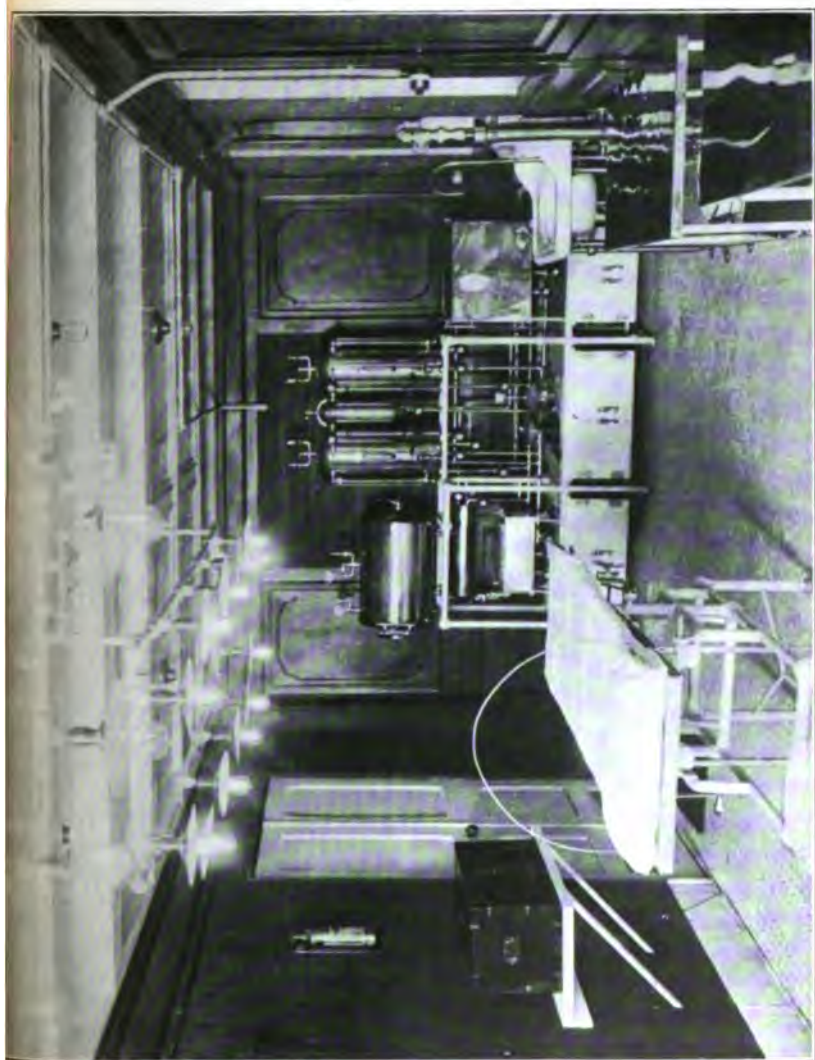
A retrospect of the war period, particularly in relation to the force afloat, brings out several striking facts. It was a time of stress and strain for all hands and not least for the medical officers confronted with situations which might have seriously embarrassed the performance of the fleet had they not been adequately handled. Out of the difficulties and trials of the early months of the war there developed a closer cooperation and a better understanding between the military authorities and the medical officers and the former developed a fuller appreciation of the importance of all the sanitary, hygienic, and remedial agencies for which the medical department contends in season and out of season. When young recruits were thronging aboard our battleships they brought with them from their homes in civilian communities contagious and infectious diseases of various types, notably cerebro-spinal meningitis, then widely prevalent throughout the country. These maladies, a menace to the best regulated camp ashore, are of infinitely more moment when introduced aboard ship. They seriously jeopardize the fleet's efficiency and, this being appreciated, a health campaign was instituted by military authorities and medical officers acting in harmony. This early and conspicuous illustration of the value of details of ventilation, segregation, and hygienic daily routine prepared the way for more intelligent, effective, and concerted measures when influenza became pandemic later on.

At the beginning of the war there was a lack of uniformity in the proposed methods of handling the wounded in battle, due to structural variations in the different ships and to the individual views of their respective medical officers. This was corrected very early. Standard shell-wound dressings, a definite line of conduct in battle, and an identical disposition of battle dressing stations, etc., for all ships were agreed upon in conference and adopted by all.

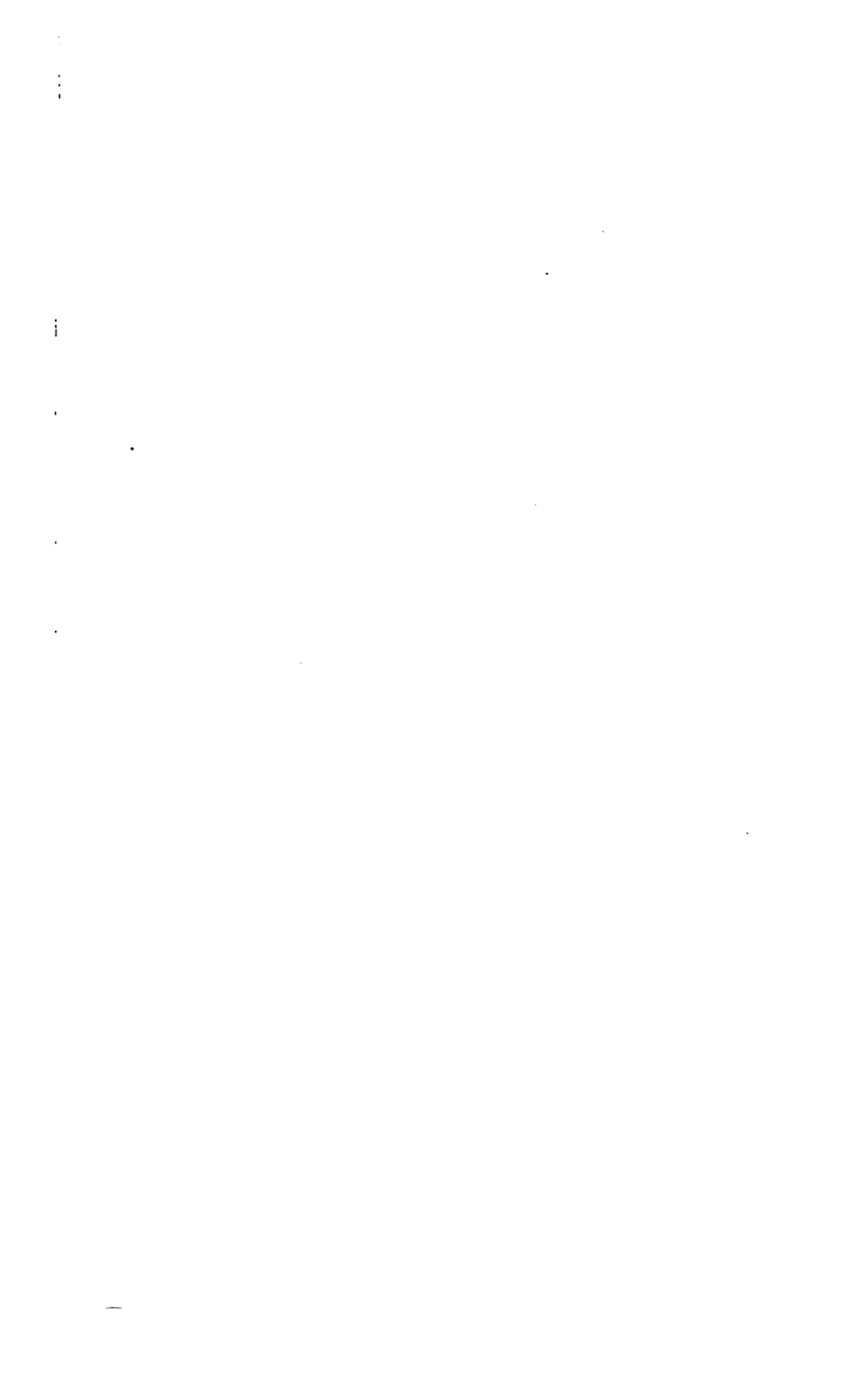
During one of the cruises at sea two submarines were sighted as a heavy fog lifted for a few seconds. Two of our ships opened fire just as the fog settled down again, and a shot passed through one of our own vessels, demolishing the sick bay completely. But the exposed sick bay had been abandoned, and the battle dressing station behind armor, previously equipped, were in perfect readiness; the wounded men were taken thither at once and operated upon without delay.

In one of the units of the fleet a system of psychiatric tests was employed with success to determine the men best qualified to profit by training for radio work.

Steps were taken on all our battleships to supplement in every way possible the previous study and experience of the newly-enrolled



STANDARD NAVY OPERATING ROOM EQUIPMENT FOR SHIPS.



medical officers. On some of the ships all surgical material was handled aboard with the special purpose of giving practical instruction to junior medical officers whose previous surgical experience had been limited or who were unfamiliar with the restrictions and difficulties attending this type of work in the confined spaces of a sea-going vessel.

A very practical point has been the systematizing of the work of the dental surgeons so as to enable them to accomplish a maximum of work without unduly diverting patients from their regular duties.

As regards material equipment our battleships were fully supplied with everything required for the care of sick and wounded; there was an abundance of drugs, dressings, instruments, sterilizers, etc., and everything was of the best design and quality procurable in the market. The personnel of the medical department has again and again demonstrated the highest devotion to duty and all the professional skill required to cope with any emergency.

One of the gratifying features of the war has been the abundant and spontaneous testimony of the medical men temporarily associated with us as to the versatility and ability of the members of the regular medical corps. Coming from all parts of the country and representing its best professional talent, the reserve officers who volunteered for service at great personal sacrifice in every case have rendered invaluable service. They have appreciated, too, the peculiar difficulties attending all the work of the naval surgeons, and with the generosity of true greatness cheerfully recognized their merit. To the majority of the reserve officers many of our administrative methods at first seemed over-elaborate and burdensome, but with increased acquaintance with service conditions they have realized how essential are these methods and how adequate to the demand.

#### UNITED STATES ATLANTIC FLEET.

By the beginning of the year 1918 the personnel of the fleet had been so increased that the majority of the ships were carrying a complement fully 50 per cent greater than they were designed for, but by this date orderly routine was well established. The new men had accommodated themselves to their environment and to the conditions of life afloat and the various methods for eliminating disease carriers and reducing contagious diseases to a minimum were being successfully executed. Even taking into account the effects of the influenza pandemic and its complicating pneumonia, the general health of the fleet was highly satisfactory, for the case mortality for those diseases was lower than in any other military group. Sanitary and general measures contributing to the results obtained were: Constant mopping of the decks with cresol; frequent disinfection by blow torches of the scuttle-butt delivery tubes inclined at a slight angle; use of formaldehyde in all spitkicks; head to foot disposition of men in bunks and hammocks; frequent exposure to the sun of all hammocks and bedding; keeping the crews on deck as much as possible; daily setting-up drills; entertainments on deck. The personnel was relatively immunized and was in general better educated on matters of personal hygiene.

Recently appointed medical officers served on the larger ships until they had acquired practical familiarity with the essentials of naval practice in matters of discipline, administration, and naval hygiene and until they had been thoroughly instructed by older men of the corps. Medical conferences, to discuss practical questions of administration or treatment, begun in 1917, became a regular feature in the routine of the fleet and were of signal value in improving and standardizing our methods.

The training of members of the hospital corps has been faithfully carried out, the instruction given being both practical and theoretical.

The unvarying insistence in the Navy on cleanliness and a high standard of personal hygiene has borne the deserved results and the bluejacket of to-day is, so far as his body is concerned, able to bear close scrutiny and comparison with any other class of men. There is little excuse for him to be otherwise, for he receives instruction in this matter more constantly than any nonmilitary individual and he is furnished with the necessary facilities.

Recently three divisions on one of the major ships of the fleet were inspected and not a man in them was found unprovided with toothbrush and some form of dentifrice. The increased number of dental officers in the fleet and their excellent work, with its indirect educational effect, has been largely responsible for the increased attention paid to oral hygiene, but the Navy's requirements in this respect can never be met until there is a dental officer on every major vessel and a proper allowance for the smaller ones. Many suggestions have been made regarding facilities for cleaning the teeth, such as the "Pullman" dental fountains and the like, but the lack of space for installing them in sufficient numbers makes this impossible. Furnishing each man with an individual collapsible aluminum cup would seem to be the simplest and most economical measure for the purpose.

The growing practice of conference between supply and medical officer over the weekly menu insures a properly balanced diet without reduction of the ration while having regard to conservation of food which has been sedulously practiced in the fleet.

What was said last year in criticism of the combined heating and ventilating system installed on the *Florida*, *Utah*, and later vessels is emphatically reiterated. Such a system, even with close supervision by a numerous detail, is highly unsatisfactory as regards health and comfort and does not compare with the method of heating by steam radiators. *After seven years of trial no vital material improvement has been developed to render adequate the combined system.*

The requirement in the Manual of the Medical Department that routes to battle dressing stations shall be indicated by an arrow and a red cross is complied with in the fleet. Other methods of indicating the route, as by metal plates, is unsatisfactory. The arrow should be black and in line with the red cross, both on a white background, if the sign is to compel attention.

At different times during the year three hospital ships have been with the fleet for short periods, but only the *Solace* has been continuously available for vessels in home waters. When the entire fleet is operating as a unit, three hospital ships are not in excess of requirements for the proper care of the sick. The destroyer force alone re-



quires a hospital ship since destroyers are unprovided with sick bays and generally carry no medical officer. The fleet should include an ambulance vessel adapted to the transfer of patients to hospitals ashore. To divert a hospital ship for this duty is to disturb the conduct of all the out-patient activities of specialists and interferes with the satisfactory and continuous treatment of eye and ear cases, with X-ray examinations, laboratory reports, Wassermann tests, etc.

Every major ship in the fleet has been inspected once each quarter by the fleet surgeon or force surgeons. In general, the conduct of the various medical departments was excellent and showed improvement over the preceding year.

A systematic campaign has been conducted against venereal diseases during the year.

There were recorded in the fleet for the year 1918 the following cases of contagious or infectious disease: Measles, 305; German measles, 152; mumps, 2,506; cerebro-spinal fever, 41; scarlet fever, 136; diphtheria, 241.

The following are the figures for the incidence of influenza in the fleet during 1918:

Total complement on--		Cases.		Deaths.	Case fatality.
		Officers.	Men.		
Battleships (29).....	32,431	232	5,076	299	4.3
Cruisers (21).....	13,926	98	1,488	43	2.7
Gunboats (8).....	1,060	19	299	6	1.8
Submarines and torpedo boats (8).....	1,136	12	286	9	3.0
Transports (25).....	18,686	148	1,357	42	2.7
Miscellaneous (4).....	1,467	2	164	5	2.9

*U. S. S. Birmingham.*—During the month of May an epidemic of influenza developed and affected over 20 per cent of the personnel, 78 cases in a space of 10 days. At the time of the outbreak the disease was epidemic over large areas of Europe. No complications developed in any of the cases and all made uneventful recoveries. With few exceptions the infection was of the respiratory type and yielded very readily to symptomatic treatment in the open air.

Fortunately during the epidemic the ship was in a southern port with ideal weather, thus simplifying the treatment and eradication measures. Awnings were spread on the fore-castle and all cases placed there in quarantine.

Men were cleared out from below decks as far as possible and made to sleep on deck. Special attention was given to sterilization of mess gear, etc. Gauze handkerchiefs were issued to the entire crew, which were burned when soiled and new ones provided. Fans were run at a maximum speed and all ports, hatches, and other openings in the ship kept open at all times.

*U. S. S. Canandaigua.*—Two cases of paratyphoid "B" developed on board, on June 11 and 15, respectively, and in each case the date of onset was the fourteenth day after their first liberty in Inverness, Scotland. The health authorities of this town have no record of any enteric fevers since 1908. Both patients stated that they took some soft drink ashore, but nothing else, and could not recall what the drink was, so the investigation did not reveal the epidemiology

of the disease. Both men received the typhoid prophylaxis in 1916, before the triple vaccine came into general use. They were transferred to the United States Naval Base Hospital No. 2, Strathpeffer, Scotland, where they made a complete recovery.

It is deemed worthy of mention that the epidemic of influenza aboard this vessel subsided almost immediately when the general use of face masks was instituted among the officers and men. Members of the hospital corps were required to wear them throughout the epidemic and not a single man contracted the disease.

The type of mask used consisted of about eight thicknesses of gauze 4 by 6 inches, with pieces of tape fastened at the four corners. These tapes were tied behind the ears just tight enough to hold the mask in place without discomfort to the wearer.

*U. S. S. Canonicus.*—Although the percentage of sickness has been low aboard this vessel it can not be said that the ship is an ideal one nor that its accommodations have kept the men efficient and free from disease. A body of men picked especially for foreign service in a healthy climate, eating the best of food, having plenty of exercise and being strictly supervised while on liberty will with remarkable luck have very little sickness. The fact that this vessel has had "remarkable luck" is very apparent when a few points are taken into consideration:

Poor ventilation is very noticeable in heavy weather when hatches must be closed. With a cargo of mines on board, which is the rule, each man has 135 cubic feet of air, only a small proportion of this being in active circulation. About 25 per cent of the crew are unable to swing their hammocks when the ship is loaded and must sleep on deck between mine tracks.

Lack of facilities for isolating communicable diseases.

Poor facilities for bathing and scrubbing clothes.

It is therefore urgently recommended if in the future it becomes necessary to hastily improvise mine-laying vessels, that more attention be paid to these three fundamental things, ventilation, bathing facilities, and larger and better medical equipment.

*U. S. S. Chester.*—

	Percentage of sick days.	Daily average.	Total sick days.
Average for 10 years.....	1.299	3.765	1,200
1918.....	1.478	5.915	2,159

The increase in sick days is to a large extent due to the fact that under the existing circumstances many cases ordinarily sent to a hospital were treated aboard ship and that it was frequently necessary to carry hospital cases until an opportunity for transfer presented itself. An epidemic of influenza likewise increased the number of sick days.

It has been exceedingly interesting from a medical standpoint to note the effect of active duty for one complete year on the 400 men comprising the complement of the ship. One hundred and fourteen of the original complement have been transferred, 29 of whom (and had it not been for the change of duty, 24, or 6 per cent

of the original complement) were transferred for more or less permanent physical disability. Considering the constant inclement weather, especially in English ports, the system of watch standing necessitated by duty in the war zone and omitting an epidemic of influenza, the foregoing statistics show that the health of the crew has been very good. A feature peculiar to this kind of ship is the exposed location of laundries, galleys, and bakeshop. Men on duty in these places are subjected to extreme changes of temperature on going out on deck and vice versa. In fact, the prevalence of respiratory diseases among these men necessitated an order requiring them to properly clothe themselves when they came out on the exposed deck.

Owing to the construction of the firerooms it is necessary for certain men, namely, water tenders, to stand under the blowers, and the general tendency for others to do so to cool off leads to respiratory and ear disorders.

There were surprisingly few cases of skin disease and body parasites. The use of anti-influenza vaccine, although optional, was extensive on ships in the Grand Fleet, but fortunately at the time it was tried the epidemic was subsiding. Its value, therefore, could not be definitely estimated. It was considered, however, that if not an actual preventive, it limited or prevented the development of pulmonary complications. It was likewise considered unnecessary to administer it to men who had had an attack of influenza. The statistics of the Grand Fleet showed that men who had the disease in the May-June epidemic did not, with but few exceptions, contract the disease in the October-November epidemic. The statistics of this ship corroborate the above. Sufficient vaccine to inoculate 25 men was recently obtained for experimental purposes.

The vaccine used in the Royal Naval Service is prepared by the Royal Naval Medical School, Greenwich, and is a polyvalent vaccine containing the bacillus of Pfeiffer and various strains of pneumococci and streptococci.

All ships in the war zone apparently passed through the cycle of a light type of influenza in May and June and a severe type in October and November. Another interesting point regarding influenza aboard ship was the constant regularity with which the ordinary type of the disease was contracted while in port and subsided after several days at sea. This has been corroborated by the medical officers of other ships. The epidemic type in May, however, occurred at sea although undoubtedly contracted ashore, and was in this respect similar to the epidemics aboard troopships.

In Gibraltar the ship spent approximately one-third of the days in port. Over-night liberty and leave were not granted. There was a district known as the "Ramps" with 10 to 12 recognized houses of prostitution, each containing four to seven occupants. These prostitutes were supposed to be examined weekly by a physician appointed by the sanitary commissioners. There were no "street walkers." The disease at that port was contracted from a relatively limited source. Had the ship routine been reversed there would undoubtedly have been a marked increase in the venereal diseases contracted at Gibraltar.

Lectures on venereal diseases and venereal inspections were a monthly routine. Every convenience was placed at the disposal of

officer will act as sanitary officer for troop spaces, see that regulations are carried out, and report to the senior naval medical officer. Living spaces will be thoroughly cleaned twice daily and sprinkled with cresol, during which periods the troops will be mustered on the weather decks and engage in physical exercise, weather permitting. Daily and nightly inspection of living spaces, wash rooms, latrines, urinals, etc., to be made by personnel detailed for this duty by commanding officer of troops with guards stationed at drinking fountains, latrines, wash rooms, urinals, etc. Daily scrubbing of water-closets, drinking fountains, wash basins, troughs, etc., with the liberal use of a disinfection solution will be enforced. All men are to sleep head to feet, take a shower bath daily, and change underclothing at least twice during the voyage. Vaccination of unvaccinated men according to list furnished by commanding officer of troops within 24 hours after embarking will be carried out. The senior naval medical officer of all medical personnel, both Army and Navy, will be responsible for the sanitation and health of all on board. The dental operating office forward on the gun deck starboard will be used as a liaison office between the Army and Navy medical personnel. Army sick call will be under the direct supervision of the senior Army medical officer, and cases of communicable disease or others necessitating transfer to the ship's hospital will be immediately reported to the liaison office. Patients so transferred to the ship's hospital will temporarily pass out of cognizance and control of the Army medical officer. The handling of appropriate Army forms will be in the hands of a man familiar with this work.

*U. S. S. Dubuque.*—It is recommended that during overhaul periods of naval vessels, especially for smaller ships undergoing any extensive repairs, the personnel be quartered and subsisted in barracks or like places ashore in order to maintain perfect hygienic and sanitary measures.

*U. S. S. Florida.*—The supply of distilled water has been adequate when cruising with the present complement. It is frequently necessary to restrict the daily issue of fresh water to a half bucket per man, and on one occasion it was necessary to stop the issue of fresh water to the crew entirely for two days, though the distillers were working steadily. The arrangements in the firerooms and engine rooms for drinking water are not satisfactory. Drinking water is kept in buckets and small covered tanks, and formaldehyde solution is issued daily for disinfection of the drinking ladles, but in spite of supervision the ladles are passed from one man to another without immersion in the solution, the formaldehyde solution itself is either thrown away or used for other purposes, and coffee pots full of water soon appear because the men can drink from the spouts. *The engineer's division comprises about 25 per cent of the total complement but during the recent influenza epidemic about 45 per cent of the cases came from this division.* It has been recommended that a small fresh-water tank be installed over each fireroom and engine room (preferably in the engineers' wash rooms) and that a pipe terminating in a spout similar to those on the ship's scuttle butts be run to the fireroom or engine room below. It is believed that by suitable locked valves on the tanks excessive use of water from these pipes could be detected and prevented.

*U. S. S. Fulton.*—As a rule submarine men who have had some experience are rugged and withstand the hardships of submarine life extremely well. New men suffer from respiratory disorders, constipation, and conjunctivitis. The conjunctivitis is caused by the irritating fumes and gases so common in submarines. After a short rest in port the conjunctivitis clears up rapidly. Boric acid or argyrol to the eyes gives no relief. After a few trips the men get accustomed to the fumes.

*U. S. S. Hannibal.*—During the pandemic of influenza this ship was stationed at Plymouth, England. After the appearance aboard of one case it was made a routine practice to spray the nose and throat of each member of the crew with a mixture of iodine and glycerine. No other case developed on the ship, though there were many ashore at the Navy base hospital.

*U. S. S. Indiana.*—On June 8, a Filipino developed a case of small-pox on board this ship, and, on June 10, 1918, he was transferred to the *U. S. S. Mercy* where the diagnosis was confirmed. Prophylactic measures were taken to prevent the outbreak of any new cases. The entire complement of the ship was vaccinated. Terminal disinfection was resorted to. A solution of cresol, soap, and water was given to the crew and the medical officers and hospital corps supervised the cleaning and scrubbing of decks and bulkheads. All vaccinations were carefully checked up for results. All men with negative results were revaccinated. Fortunately, no new cases developed. During the process of vaccination, it was noticed that some men showed positive vaccinations after four or five previous negative vaccinations had been entered upon their records.

When the present medical officer first reported on board, he was informed that some of the men had not been off the ship for a period of 105 days, and upon investigation it was found to be true. This was not only true of the men but of the officers. This condition fortunately changed and under the capable leadership of the present captain, who stands ever ready to do anything which will promote the efficiency and happiness of the officers and men under him, this ship has become one of the happiest in the United States Navy. Capt. G. B. Landenberger, United States Navy, has at all times been ready to make any personal sacrifice for the comfort of the sick and disabled aboard this ship.

*U. S. S. Jupiter.*—The venereal list was not high until the ship went to Marseilles, France, where for three weeks over 100 men were allowed liberty daily. Attempts to limit prostitution were made by the authorities, but without avail. The crew was duly warned of the prevalence of venereal disease in this port and instructed in the method and necessity of taking prophylaxis as soon as possible after exposure. Over 100 typewritten instructions on the proper method of taking prophylaxis were issued and bulletins were posted setting forth the penalties attached to concealing the disease. Five cases of gonorrhea and 13 cases of chancroid were contracted but with no frank syphilis. Wassermann tests will be performed on all men with chancroid as soon as opportunity offers. The appearance of gonorrhea after taking prophylaxis can not be definitely explained, but it is presumed that it was improperly taken or that the men signed for it without visiting the station. The longest time men were away

from the ship was 11 hours, not over 6 hours on an average elapsing between exposure and treatment. There were several prophylactic stations in Marseilles, but they were not in the immediate vicinity of our men, who had to wait until their return to the ship. However, considering the length of time at Marseilles and the number of prostitutes, our venereal rate was low.

*U. S. S. Kansas.*—During the latter part of November and the early part of December the ship was being fitted for the duty in which she is at present engaged, namely, transporting troops from France to the United States. This duty being a new one for battleships, has brought new problems with it. It was considered that ships of this type could safely transport 1,000 troops and 40 officers. In order to do this it was necessary to reduce the number of ship's officers and men to as low a limit as would be compatible with safety and the efficient operation of the ship. As a result the ship's complement was reduced from approximately 1,200 to about 600. The number of hospital corpsmen was reduced to nine.

In order to care for the troops, the entire gun deck and a large part of the main deck were fitted with 4 by 4-inch stanchions and jackstays so arranged as to allow hammocks to be swung in four tiers, the number of rows depending upon the size and shape of the various compartments. It was recognized that this would mean overcrowding, but not to the danger point, provided weather conditions were good and the troops assigned to the ship were in good health. Comparative certainty of having good weather could be secured by using the southern route from Brest to Hampton Roads and it was thought that the Army officials would see to it that only healthy men would be sent to the ship for transportation, the sick and wounded being sent home by faster ships and those better arranged for the care of the sick. After the jackstays were installed it was seen that more than 1,000 men could be handled with safety, providing again they were healthy men. It was decided that 1,750 men could be accommodated with reasonable safety. Eighteen salt-water showers were installed in the crew's wash room and arrangements made for others in the bull rings around the 8-inch turrets, the latter to be used if weather conditions were such as to allow outdoor bathing. In this way it was thought that every soldier could obtain two full baths on the trip of about 12 days, a minimum allowance compatible with health and reasonable cleanliness. The number of heads was recognized as being below the desired number, but so far no bad results have been noticed from this.

Four tanks for washing the soldiers' mess kits were installed on the gun deck and steam connections made so that the kits could be washed in practically boiling water after each meal. As each soldier has his individual mess kit, it is thought that there is little danger of transmitting disease through this common source of infection. The crew was given berthing space below the gun deck and on the main deck and allowed the use of the engineer's wash room for bathing and toilet facilities. This arrangement has proved satisfactory. The problem of feeding the troops has been satisfactorily solved by having four serving stations which the men pass by in single file and from which they are served, the food being kept hot in large metal containers. From these stations they pass to the bread sta-

tions and from there return by a definite route to their own compartments where they sit at tables or on deck as space permits.

It was found upon arrival at Brest, December 22, that there were many cases of epidemic influenza among the civilian population and some apprehension was felt about crowding so many troops from an infected port into such close quarters. There had been, however, no cases among the soldiers at the embarkation camp and healthy soldiers were asked for, so the number previously decided upon was not reduced.

About 1,745 officers came aboard for transportation home on December 26. These were made up of several organizations, among them being about 100 "casuals." It could be seen at a glance that these were not healthy men and it was feared that the unavoidable crowding aboard ship would be harmful to them. Many of the "casuals" had been severely gassed and were constantly coughing. Others had received wounds, which, although healed, rendered it impossible for them to lie comfortably in hammocks. These troops were given billets on the main deck where, under almost any weather conditions, the air would be plentiful and where they would be less crowded than on the gun deck. At the time of writing this report, the ship has been at sea five days and, so far, no serious illness has developed. There have been many cases of influenza of the type we always have with us and which, apparently, bears no relationship to the epidemic variety recently so prevalent. Other catarrhal diseases of the respiratory type are numerous, but thanks to ideal conditions, the men have been able to spend almost all day in the open air with great benefit. It is noted that although the "casuals" form but a small minority of the troops aboard ship, they supply a large majority of the sick. This is to be expected, for, as previously stated, many of them are still suffering from the effects of gassing. For this reason it is urgently recommended that in the future steps be taken to insure that only well, healthy men who have not been wounded or gassed be sent home on battleships. If this is done there will be only a justifiable risk taken in crowding men as much as is necessary on a ship of this type in order that a reasonable number be transported.

After being at sea three days it was discovered that although the troops sent to the ship had presumably been deloused, there were cases of pediculosis vestimentorum among them. An inspection was held at once by the Army medical officers on board and 41 cases were found. They were segregated while a delousing plant was being constructed on the boat deck. The plant consisted of four large immersion tanks, to which tops were fitted and into which steam lines were run. The tops were so fitted that about 5 pounds of pressure could be obtained in the tanks. The clothing of the infested men was placed in the tanks and exposed to steam for 20 minutes. In the meantime the men were required to take a salt-water bath, using liquid soap. Any visible pediculi and eggs were removed by hand. When the clothing was dry it was returned to the owners. It is too early to tell whether all of the lice and eggs were destroyed, but such is believed to be the case. It is strongly recommended that in the future it be insisted upon that all men be thoroughly deloused before embarking. It is only reasonable to expect that on a ship carrying over 2,000 men and remaining at sea for a period of about two weeks there will be an occasional death. As public opinion at present seems to be strongly

opposed to burial at sea. it is thought that a small number of burial caskets should be supplied to the ships engaged in this duty.

*U. S. S. Melville.*—The ship has spent the entire year at Base 6, European waters. During this period she has been the flagship of Rear Admiral W. S. Sims, United States Navy, and has been very actively engaged in the duties of a tender for from 12 to 21 torpedo-boat destroyers, 18 submarine chasers, and various other craft and several local activities on shore. The increase of activities on board has necessitated a large increase in personnel, the average complement for the year being 809.2 men. Dangerous overcrowding has resulted, but fortunately there have been no outbreaks of disease other than an epidemic of mild influenza during the month of May. There have been no cases of cerebro-spinal fever and but one case of lobar pneumonia and but one of broncho-pneumonia. Owing to the fact that liberty expired at midnight, it has been possible to administer prophylaxis quite early. So administered it has been found to be quite effective. A large percentage of those who have acquired venereal disease has been among the men who went on furlough to the large cities. It has been the rule to operate on practically all cases of gonorrheal epididymitis. The operation gives immediate relief from pain, in many cases shortens the period of convalescence, and invariably prevents a recurrence. In connection with the early diagnosis of syphilis, a dark-ground illuminator has been found very valuable. All ships carrying microscopes should be equipped with this apparatus. It is of interest to note that this is being done in the British naval service. Scabies is unusually prevalent in this part of the world and causes considerable invalidism as a result of the frequency with which the disease is complicated by furunculosis.

As has been stated in previous sanitary reports the *Melville* acts with relation to the destroyer force after the manner of a hospital ship, the seriously sick from these boats being transferred aboard and retained for treatment until fit for duty—with this difference, however, that such cases during this time are carried on the records of their own ships and the rations are commuted. An idea of the considerable additional work performed in this manner can be obtained from the following statistics:

Admissions from destroyers, etc.....	509
Total sick days spent on the <i>Melville</i> .....	6, 415
Daily average of patients.....	14
Average sick days per patient.....	12.6
Number of patients operated on.....	98

In addition to the above there were a great many treatments dressings, examinations, and minor operations of which no record was kept. During the 19 months which this ship has passed in European waters it has been necessary on several occasions to treat groups of injured men. When the *U. S. S. Cassin* was torpedoed the entire stern abaft the after gun was blown off. One man was killed and four suffered minor injuries and shock. The second destroyer torpedoed and the only one lost from this base was the *U. S. S. Jacob Jones*. In this case 66 men lost their lives as a result of the explosion, drowning, or subsequent exposure. Twelve of the survivors were in a serious condition from shock and exposure. Three suffered from injuries. The lesson to be learned from this accident is the wisdom of never undressing while in danger of being torpedoed and



of wearing very heavy clothing at all times under similar conditions. Men who were bathing at the time of the explosion or who were scantily clad invariably succumbed to exposure.

One man was killed and three injured by shell fire when the U. S. S. *New York* fired on the U. S. S. *Jenkins*, mistaking her at night for an enemy submarine. One had three toes amputated and the other two received superficial shell wounds. A collision between H. M. S. *Montague* and the U. S. S. *Manley* detonated several depth charges. The stern of the *Manley* up to the after torpedo tubes was blown up and the explosion was followed by a fierce fuel-oil fire. In this accident 34 men lost their lives. Several of the 17 bodies recovered were so badly burned that identification was difficult and it was not possible in the case of two. The crew had not been supplied with identification tags. This accident demonstrated the value for purposes of identification of carefully kept dental sheets. The wounded, 22 in number, suffered from numerous lacerated wounds, fractures, and multiple burns. Paraffin proved very effective in the treatment of burns and chlorazine in the wounds that showed signs of beginning infection. One case of rupture of the tympanic membrane subsequently developed otitis media and mastoiditis, which required a mastoid operation. Another developed an aneurism of the brachial artery, which subsequently necessitated an operation. In a third case where a fragment of metal penetrated a lung the fragment was well tolerated and subsequently encapsulated. The steering gear of the U. S. S. *Shaw* became jammed, resulting in a collision with H. M. S. *Aquitania*. The *Shaw's* entire bow was cut off cleanly just forward of the bridge. There resulted a fierce fuel-oil fire which burned for several hours. Twelve men lost their lives as a result of this accident. A small portion of only one body was recovered and identified by the identification tag. Fifteen men were injured, chiefly by being burned, several of them quite extensively.

These accidents show the value of always dividing medical stores, one portion being kept forward, the other aft. In several instances the entire medical outfit was destroyed. There should be kept on deck in easily accessible places, such as the forward and after deck houses, two small first-aid outfits. Small weatherproof metal lockers could be provided for this purpose. These accidents also demonstrate the value of not taking health records to sea in time of war. There was at this base an order prohibiting the taking of health records to sea but it was disregarded in one case and all that ship's health records were lost. (This refers to torpedo boats.)

*U. S. S. Michigan*.—A higher percentage of communicable diseases in the engineers force has been observed. This has been attributed to the drinking arrangement in the engine and fire rooms where the old system of drinking from the bucket and tin are in use. Disinfectants have been used but without the desired effect. It is considered advisable and recommended that drinking fountains be installed in these compartments.

A diphtheria epidemic began about March 4 and continued until the latter part of April; 66 known clinical cases were transferred to the hospital and about an equal number of cases with diagnosis undetermined, probably diphtheria. The entire personnel received the Schick test and had throat cultures made. Positive Schicks.

received an immunizing dose of 1,500 units of diphtheria antitoxin. This was done at the outbreak of the epidemic and probably prevented a larger number of cases as the actual throat cultures showed that approximately 50 per cent of the entire personnel were carriers of the Klebs-Loeffler bacillus. The ship was not quarantined at this time but continued her duty with the fleet, no visitors being allowed aboard or visiting to other ships. There were no fatalities and no serious complications, the routine treatment being immediate subcutaneous administrations of 20,000 units of diphtheria antitoxin with repetition in 24 hours if no improvement took place, 10,000 being given by the intravenous route.

*U. S. S. Missouri.*—The lighting system for the battle dressing stations has been improved. In addition to the ship's circuit there is a lighting system of low voltage connected to a battery and arranged that when the ship's current is cut off intentionally or because of breakdown the battery system is automatically switched on. In addition to this each station is equipped with a waterproof light supplied by dry cells. Two 100-gallon tanks for drinking water for the wounded are installed, one at each station. First-aid bags and canvas are furnished to the guns, turrets, handling rooms, and exposed positions. The hospital corpsmen and bandsmen are instructed in first aid, resuscitation of the apparently drowned, checking of hemorrhage, and treatment of burns.

*U. S. S. New Mexico.*—The medical department spaces are adequate for the needs of the sick under the usual conditions, and consist of sick bay with 24 bunks, adjoining bathroom with tub, shower, slop sink, and lavatory seat; isolation ward with four bunks, wash basin and lavatory seat; venereal prophylaxis and treatment room with slop sink; dispensary, surgeon's examining room, and operating room. All were very satisfactorily equipped but there was insufficient locker space, a defect which has been remedied since the ship went into commission. A special soiled linen-locker space should be installed originally in every ship to avoid the need of additional construction after the ship goes into commission. The medical department storeroom is ample in size and splendidly arranged. The proximity of the carpenter shop to the sick bay is very unsatisfactory and necessitates the work in the shop being frequently stopped on account of the noise.

*U. S. S. New York.*—From January 1, 1918, to December 31, 1918, the *New York* was flagship of the Sixth Battle Squadron on duty with the Grand Fleet. During this period the ship was based at Scapa Flow, Orkney Islands, and Rosyth, Firth of Forth, Scotland. In February, Newcastle-on-Tyne was visited for docking purposes.

In June an epidemic of influenza occurred and 138 cases were treated, with 420 sick days. Complications ensuing from this epidemic were as follows: Lobar pneumonia, 5; broncho-pneumonia, 1; empyema, 1; sero-fibrinous pleurisy, 2. This epidemic is reported as being of much milder character than the second epidemic which occurred in October and ran into November. Twenty-three broncho-pneumonia cases were diagnosed on board before their transfer to Base Hospital No. 3, at Leith, Scotland. Of this number 7 died. On account of the seriousness of the epidemic on many of the ships, both British and American, of the Grand Fleet, and of the severe

of the cases, special measures were instituted to control its spread. The ship was placed in strict quarantine and the entire personnel wore gauze masks renewed every morning. All throats were sprayed with Dobell's solution morning and night. Decks were swabbed daily with a solution of cresol. The crew's recreation room was used for convalescent patients, as it was found inadvisable to transfer patients to duty until their temperature had been normal for at least four days, and even then several relapses occurred. In December a recrudescence, assuming slight epidemic proportions, occurred with 26 cases and 157 sick days, two cases being complicated by broncho-pneumonia.

Complications: Lobar pneumonia, 5; broncho-pneumonia, 26; empyema, 1; sero-fibrinous pleurisy, 2. Two deaths occurred on the British hospital ships, 1 from empyema and 1 from lobar pneumonia. In this connection it seems proper to refer to the general efficiency and fine administration of the United States Naval Hospital, Leith. Some ill-considered criticism by a British officer patient, because he was treated in a ward when he desired a private room, reached the commander of the Sixth Battle Squadron and occasioned him some perturbation until he became aware of the fact that in the period in question there were 96 officer patients, 89 of whom were British, and that it was manifestly impossible to assign more than a few private rooms. Officers were segregated in small wards and received quite as good attention and treatment as would have been possible in private rooms. The writer was personally assured by both Fleet Surgeon Hill of the Grand Fleet and Surgeon Captain Nance in charge of the assignment of patients of the fleet to shore hospitals that the establishment of the United States naval hospital at Leith had proved of incalculable benefit to the fleet, particularly at a time when, owing to the widespread epidemic of influenza, the British hospitals were all crowded to their capacity. It was the proud assertion of the United States Navy Base Hospital No. 3 at this time that never in one instance was a case, male or female, denied admittance, though it sometimes meant the temporary occupation of offices, etc., not meant for the reception of patients.

The ventilation of the ship on the whole is excellent. The intakes are high enough so that when the ship is under way and the weather rough and hatches battened down there is a fair supply of fresh air in living spaces. There is no exhaust in the chief petty officers' quarters on the berth deck, and at sea this is the worst ventilated part of the ship.

On the voyage across the Atlantic in 1917 during a heavy sea a ventilator on the forecastle carried away, permitting an immense amount of water to enter many of the storerooms. From that time until recently all ventilation has been blanked off from storerooms and magazines.

*U. S. S. North Dakota.*—Because of the presence of diphtheria in epidemic proportions in New York and Brooklyn with the occurrence of a few cases on board, Shick tests were carried out on the entire crew with the result that 205 were found to be susceptible to diphtheria. Toxin-antitoxin was procured from the New York Board of Health with the idea of immunizing these men against diphtheria, but before this immunization could be carried out the cessation of hostilities resulted in the transfer or discharge of the majority of the

men who were members of the reserve force. As considerable time is required for the development of toxin-antitoxin immunity it is believed that immunization of the Shick test might best be done at training stations as a routine measure during the period of detention and immunity determined by further tests before detail to sea.

*U. S. S. Oklahoma.*—The following venereal statistics are for the time the ship was in foreign waters. During October 249 men were given one week's leave in London. Of this number 8 developed gonorrhea. Eighty-two out of 249 took prophylactic treatment in London after exposure. Of this number 60 took prophylaxis once, 10 twice, 9 took prophylaxis 3 times, and 3 took prophylaxis 4 times.

The entire enlisted personnel (the average complement of the ship is 1,424) has been examined by the dentist who found 786 bluejackets and 55 marines in need of dental treatment. This consisted of 581 roots to be extracted, 2,243 cavities to be filled, 1,042 teeth missing which should be present for masticating surfaces and which can be corrected only by bridge work. Five hundred and eighty-two bluejackets and 25 marines have had dental work completed.

*U. S. S. Panther.*—The general health of the entire flotilla has been exceptionally good considering the weather conditions and the arduous duties which the boats have been performing. The greatest number of sick days was from diseases of the respiratory tract, such as bronchitis, laryngitis, and influenza. During the pandemic of influenza the *Panther* was stationed at Pauillac, France, and remained practically free from the disease. Twice a day the crew were required to muster in line and receive nasal and throat spray of 1-500 potassium permanganate and 25 per cent argyrol applied to their throats. Men were forbidden to go ashore, except for actual emergencies during a period of about three weeks when the epidemic was at its worst and when they returned to the ship they were required to take the treatment. It is not known how efficient these prophylactic methods were in preventing influenza, but considering that a ship lying close to us had 14 deaths and only three or four mild cases were contracted on this ship it is believed that it was of some value. During the early part of the year when sprays were not used the ship had approximately 50 cases of influenza. The *Panther* has been away from the United States since July, 1917, and there has been no opportunity for a thorough fumigation. No recommendation which would involve any considerable expense would be legitimate, the *Panther* being an old and more or less obsolete repair ship when compared with new repair ships, but it is recommended that she be given a thorough fumigation at the very first opportunity and that an exhaust system of ventilation be installed for the foundry.

*U. S. S. Pennsylvania.*—The ship's laundry has facilities for handling not only the linen of the officers, but the clothing of the crew as well. It is considered advantageous from a sanitary point of view in that clothing prior to being washed is sterilized, and this is evident in the small number of admissions to the sick list due to skin diseases of a contagious nature.

The provisions for handling the wounded in action have been prepared with a great deal of detail. The stretcher bearers are details comprising the band and orchestra, the 39 bandsmen being detailed for the after station and the orchestra of 23 for the forward one.

These men have been carefully instructed in first aid and the handling of the wounded in all parts of the ship. The transportation of casualties in all stages rests with them entirely. They are supervised during casualty drills and in action by the hospital corpsman who has charge of the records in the dressing station. The remainder of the hospital corps, eight aft and seven forward, have been assigned specific duties, in which they are well drilled and which they understand. Duplication of work has been eliminated, yet automatic reliefs have been arranged for should any one of them become incapacitated. This permits the medical officers to give all their attention to the wounded, with men at hand who know what to do.

The after station has been designated the main station, and the senior medical officer and the chaplain are stationed here. It is the larger, and there is less interference by men passing through. The wing compartments are prepared as wards for receiving the wounded after treatment. The sterilizer is located here, and a plan has been mapped out for the steady flow of sterilized material to the forward station.

*U. S. S. Prairie.*—Originally a transport for marines, this ship was at the beginning of the war converted into a mother ship for torpedo-boat destroyers, and the medical department was fully stocked with all necessary equipment and accessories—sick bay, operating rooms, dispensary, dentists' office, etc.

From April, 1918, to November, 1919, the ship convoyed submarine chasers from New London, Conn., to the Azores by way of Bermuda. On the second trip 200 cases of influenza developed in the 35 vessels of the convoy and were taken aboard the *Prairie*. On October 9, 1918, sub-chaser No. 219 was destroyed by a gasoline explosion. The burned and injured among the survivors were removed to the *Prairie*. Those who died later were buried at Ponta Delgada, Azores, after embalming. Upon the conclusion of the war the ship went to Trepassy Bay for service in connection with the naval transatlantic flight, and her medical personnel was deluged with requests for professional treatment by the native fishermen of that barren land. The dental surgeon worked day and night over patients who had never seen a dentist before in their lives.

The greater part of the year was occupied in convoying and repairing subchasers of the 110-foot type. If these boats are again to take an important part in the antisubmarine warfare or even in minor patrol duty, the air supply in their crews' living spaces must be seriously considered with a view to improvement. By diffusion the gasoline fumes originating in the engine room penetrate through bulkheads that are not watertight and make living conditions unsatisfactory. At the same time there is always the imminent danger of a serious explosion from ignition by a spark.

*U. S. S. Rhode Island.*—The continued use of the sick bay as a passageway to the paint locker, sail-maker's compartment, and small stores and storeroom, noted by my predecessors, is still a very annoying feature both to patients and medical officers.

When at sea in rough weather the ventilating system is shut down and as a result the air soon becomes very foul and tends to retard the recovery of all cases that are confined to their beds. This is particu-

larly true of diseases of the respiratory tract. An order from the commander, Battleship Force 1, required that all battle ports be closed while at sea "to preserve water-tight integrity." Thus artificial light was used throughout the sick bay at all times and proved to be a source of annoyance to bed patients as the lights shone directly in their eyes. It is believed that the order could be dispensed with now that hostilities have ceased. The recommendation of the previous medical officer for metal first-aid boxes for gun compartments, turrets, handling rooms, and engine rooms has been approved by the bureau, but the letter announcing that these boxes were ready apparently contemplated that they be stowed in one place and carried to the compartment only in time of battle. This is believed to be a grave fault as there are so many small objects (first aid box, buckets for drinking water, and various articles of gun equipment, etc.) crowded into these spaces, that some of them are bound to be in the way and hence thrown out at the very time they are needed most. If a single locker sufficiently large to accommodate all of this gear were installed in each compartment greater efficiency would be obtained.

On December 6, 1918, the commanding officer of the *Rhode Island* received orders to prepare his ship for transport duty, and in about a week sailed for France.

The ship was fitted for the carrying of 1,000 men and hammocks were provided and swung on the gun deck. By this arrangement the 600 men comprising the crew were forced to find sleeping quarters all over the ship, sleeping in offices, alleyways, wing passages, storerooms, and even in the tops. In spite of this crowding the health of crew and troops remained fairly good. This result was obtained in large part by the enforcement of frequent bathing and daily setting-up drills. Other elements were the seasoned condition of the men and the avoidance of bad weather by returning to the United States by the southern course. On the first three trips the troops were messes by the regular Navy method of setting up tables. This arrangement was found to be unsatisfactory, particularly during rough weather.

The cafeteria system was then installed and proved to be much better, the men getting their food in a much warmer condition, and all being fed in a much shorter time.

The bunking in hammocks is believed to be much better than the installation of standees, as the hammocks were easily stowed during the day and left the decks free for mustering, etc., and affording better opportunity for cleaning the compartments.

On the last two trips 1,200 troops were carried. This number caused extreme crowding and necessitated the bunking of some 150 or 200 on cots or the bare deck beneath the swung hammocks. The living conditions, never very good in some compartments, thus became very bad, in spite of the installation of windsails and the opening of the fireroom ventilators.

*U. S. S. Rochester.*—During the past year this ship has been doing convoy duty and has made seven trips across the Atlantic. At no time did she touch a European port, but about one day therefrom would turn over the convoy to the charge of torpedo boats from the other side and turn for a homeward voyage. Four trips were made to the north of Ireland, three to the Bay of Biscay. Since the

armistice she has been fitted out for a troop transport and is now on the way to France to bring back troops.

The ship has actually been at sea 177 days and has cruised 48,750 miles. The remainder of the time has been spent in the ports of New York, Hampton Roads, and at the Boston Navy Yard, where she has had three repair periods.

The number of sick days recorded during the past year is 4,059, the average complement has been 597, the percentage of sick, 1.86. The percentage of sick seems a little high, but is partly explained by the fact that the long trips at sea made necessary the treatment of most of the sick on board. The outbreak of mumps in January and the serious epidemic of influenza during September and October caused a very material rise in the percentage of sick.

The majority of the venereal cases were contracted while the ship was at the Boston Navy Yard for repairs. While a ship is undergoing repairs or overhaul it is not a very pleasant dwelling place and many of the men prefer staying in brothels or low-grade hotels rather than sleep aboard. It is believed that if barracks were provided for the crew while a ship is undergoing repairs in addition to the improvement of the health of the crew it would tend in every way to reduce the number of venereal cases.

As preventive measures during the influenza epidemic all mess gear was passed through boiling water after each meal, the scuttlebutt fountains were sterilized with boiling water twice daily, the decks swabbed with bichloride solution, the men kept up in the fresh air as much as possible and warned to report to sick bay at the appearance of the slightest symptoms. The use of the handkerchief or gauze was urged, especially for those ill or convalescing. Masks were not used during the worst of the epidemic, and the junior medical officer and one hospital corpsman were the only members of the medical department who contracted the disease.

This ship has just been fitted out for bringing troops back from France, and 399 is considered the troop capacity. Standees to the number of 510 have been installed, but many of these will be occupied by the crew. Part of the crew has been transferred—almost as many as troops to be carried—so that overcrowding will not be much more than it has been. The ventilating system is much better, however. The standees are almost flat, and as this ship rolls considerably in a rough sea, anxiety is felt lest there be some serious injuries by the men falling out.

*U. S. S. Sacramento.*—This ship was based on Gibraltar until December 11, escorting ocean convoys in the eastern Atlantic and western Mediterranean. Some discomfort was experienced in making long trips from the subtropical latitude, where the climate was mild, to the cold and disagreeable climate of the north, although this was alleviated to a great extent by a liberal supply of heavy clothing. No epidemics or infectious or contagious diseases except influenza were encountered in any of the ports visited. Venereal diseases were rampant, however, especially in Gibraltar, where prostitution is practiced without restraint. The men have been given as much time as practicable for rest and recreation ashore. While the service in the war zone was attended with many hardships and discomforts, they remained happy and contented as a rule. The ship is dry, well ventilated, well heated, and well lighted. Special attention is paid

to cleanliness, which is most essential in the preservation of health. All in all, everything has gone well. The ship's personnel are now in a high state of efficiency.

*U. S. S. Salem.*—Among the places visited, Ponta Delgada, Azores; Haiti, and the Republic of Panama were of special interest. The ship did not remain in any of these countries long enough to make a thorough sanitary survey. Virulent venereal disease seemed to be exceedingly prevalent, however, in the Azores and in Colon, Panama, especially the former. Naval vessels, when stopping at these ports, should enforce stringent rules regarding liberty and medical prophylaxis. The health officer of the port at Ponta Delgada stated that since our Navy had established a base there health conditions and sanitation had been greatly improved. In Haiti casual conversations with the natives on the streets brought out the fact that the hospital corpsmen of the Navy were held in profound respect by them, a fact that impressed me very much. They are evidently doing a great work there and deserve much praise. At the other ports visited—La Guayra, Venezuela; Port Limon, Costa Rica; and Guantanamo Bay, Cuba—no liberty was given on account of the prevalence of influenza in epidemic form.

From July to December the *Salem* acted as a mother ship to a group of twelve 110-foot submarine chasers carrying an additional total complement of 300 men. Sick call was held for them every morning and all patients were treated aboard this ship. The medical department returns, therefore, as per instructions from the bureau, include both the *Salem* and the chasers for the period mentioned. Life aboard these boats was far from an easy existence. The most trying thing to deal with was the chronic bronchitis and congestion of the lungs, present in some men, due to constant inhalation of gasoline fumes. The health, however, of the individual crews was very good, and, with the exception of unusual requests and increased paper work, little trouble was experienced with them.

It would seem that from a hygienic point of view, there should be some method of comparing the health of the personnel of different ships of the same class and of different classes of ships and those doing similar duty and dissimilar duty and of ships having different lengths of commissioning, with a view to an ultimate determination of standards of health under varying conditions. To say that the health of the crew has been excellent or satisfactory or very good, etc., has little scientific value for the reason that it is never clear how much better or worse it has been with varying conditions, what standard is assumed or what method was employed to arrive at the conclusions. The climate seemed to exert no influence on our influenza cases, and they occurred under the most diverse weather conditions. From January to March the ship passed through a very severe, damp, cold, penetrating winter at the navy yard, Boston, while from April to December she was cruising in sunny tropical waters. Two epidemics occurred, one in Boston during February, the other at Key West in September. During the winter months the presence of the disease in epidemic form can be attributed to the severe weather and to the overcrowding of the ship, which was a necessity, of course, from a military standpoint. Men were constantly exposed to dampness; stood watches in driving rains and snow storms



and it is natural that influenza should flourish under these conditions. The epidemic in September and October is believed to have been part of the pandemic prevailing all over the country. The surprising thing is that the severe weather did not result in any complications and that all the complications which did occur in our personnel, developed during the epidemic of September when the ship was in tropical waters. This may have been due to a virulent strain of the organism.

*U. S. S. Scorpion.*—The Turkish Government placed only a limited restriction on this ship from April 11, 1917, to November 15, 1917, after which complete restriction existed until October 23, 1918, when the ship was released for internment. During the period of limited restriction the crew and officers were allowed ashore until dark. During the period of absolute restriction the crew were allowed ashore on an average of about five hours per month per man, under guard, and the officers were allowed ashore about once a week. Conditions improved and the crew was allowed ashore twice a month for the same number of hours and officers twice a week. During this time the liberty and extension of it depended largely on the amount of money expended by the United States Navy men and their officers.

The general health of Constantinople, as far as could be learned, has been good, except for a very severe epidemic of influenza beginning September, 1918, which lasted about two months. During this time there were 50 very mild cases on board. A few sporadic cases of typhoid, typhus, and cholera occurred among the civil population. The percentage of sick for the year was 1.6. There were no deaths.

*U. S. S. Shaw.*—There was a collision between this vessel and *H. M. S. Aquitania* on October 9, 1918. The entire bow of the *Shaw* was cut off and a severe fire resulted from the ignition of oil in the forward fuel tank resulting in 12 deaths and 21 injuries.

*U. S. S. South Dakota.*—This ship crossed the Atlantic 16 times during the past year up to the date of the signing of the armistice, acting as an escort for transports carrying thousands of men. Since the armistice there have been over 2,000 standees installed and the ship has made one more trip across the Atlantic and is now to provide transportation for more than 15,000 troops back to the United States.

The ship at present has the following accommodations for troop transportation: 1,384 bunks on the gun deck and 170 on the main deck for the use of the ship's crew. For convenience sake the berthing spaces are divided into compartments containing approximately 100 men each and having approximately 2,200 cubic feet of air space in each compartment. The standees have four tiers of bunks fitted with fine-mesh wire spring bottoms. Ten salt-water shower baths are installed forward of the crew's heads. These are steam heated and it is planned to march the men by squads and require them to take baths twice a week.

*U. S. S. Texas.*—Experiences with linoleum for decks subjected to flooding from seas, as must invariably happen when gun ports are kept open, shows that it rapidly disintegrates and as the holding cement softens, foul water gathers underneath, making it necessary to renew frequently. Shellacking is but a temporary remedy for resurfacing. Where decks must be frequently scrubbed and where hot water is so frequently required it is recommended that vitreous tile

be more largely used. That installed on board has worn most satisfactorily and considering permanence, ease of cleaning, and that it requires no refinishing, should prove a more hygienic and economical deck covering than lineoleum or compositions. It is recommended that the deck in the sick bay, all pantries, and barber shop be laid with tiling and it is suggested that our experimental installation be placed in corridors of wardroom country and in offices.

In spite of the crowded conditions of the ship, the unfavorable climate of the North Sea, the confined life of the men, and two epidemics of influenza, the general health of the crew has been excellent. The normal complement of the ship in peace times is 1,006 and billeting was planned for that number. At no time since the ship left the United States, was the complement below 1,400 and on the return voyage home approximately 1,800 were carried. It is obvious that such overcrowding and congestion constituted a serious hygienic offense, and it is a menace to the general health of the personnel. The climate of northern Scotland is extremely damp and foggy and comparatively little sunshine is available for the airing of bedding and compartments. The crew had also very little opportunity for liberty and recreation as compared with normal times, as the ship was under "four hours' notice" during the whole period with the Grand Fleet. The pandemic of influenza, while affecting this ship much less than many others, was a great factor in increasing the sick days. The average number of sick days was 4,835, and the daily percentage of sick 0.51. There have been three deaths, all accidental.

Venereal disease:

Gonococcus infection urethra.....	113
Chancroid.....	46
Chancroid of lymph node inf.....	8
Syphilis.....	21

Nearly all the above cases were contracted abroad.

The dual system of heating and ventilation in use on this ship has been fully commented on and criticized in previous reports. The system here in use has not given the results that would prove it efficient. It is recommended that the present installation be modified to allow freer egress for the air introduced by fans, and that the intake for air be located amidships and sufficiently high to permit fresh air being admitted when at sea with all mushrooms closed. Incidentally, mushroom intakes and caps are not sufficiently strong to be safe in the seas encountered. The matter of regulation of heat, unbalanced distribution, and failure to circulate in distant rooms has already been reported. To sum up: The system is most inefficient when it is most needed—at sea and when battened down. The heating of the ship is under the direction and in charge of the medical officer and the utmost vigilance is required to give even fairly satisfactory results. Further, there is no provision made for maintaining the production of a normal condition of humidity. It is obvious that the introduction of air with the normal saturation at, say, 40 F., and rising to a considerably higher temperature, seriously modifies and reduces the humidity. The drier the air, the greater is the difference between the actual and the sensible temperatures. Dry air heated much above the normal will still be chilly, slight drafts are very noticeable, and colds and respiratory disorders are more easily con-

tracted. These elementary facts have been amply and forcibly demonstrated on board this ship. Both as regards the health and comfort of the personnel of this ship, nothing demands more urgent and imperative attention than the two following points: Installation of a thermostatic apparatus for the general regulation and equable distribution of heat throughout the ship, as at present some parts are overheated, while others are uncomfortable and chilly; and humidity control.

*U. S. S. Virginia.*—Though one of the smaller and older battle-ships this vessel made two convoy and five transport trips, carrying in all about 6,000 troops without a death among Army or Navy personnel in spite of the fact that a number of pneumonias developed.

*U. S. S. Ward.*—The dispensary is located forward of the crew's quarters on the platform deck. Here all stores and supplies are kept. It is ample in size and the storing capacity adequate. There are four lockers containing shelves and bottle racks on the bulkhead for the Navy standard set. Here all pharmaceutical and stock preparations are kept. The dispensary on a destroyer should never be located in this part of the ship. The ventilation is very poor and this part of the ship seems to get all the roll while at sea. Men will keep away from the dispensary when in need of treatment rather than run the risk of becoming seasick while having their wants attended to by the medical officer. It is recommended that the dispensary be located in a more suitable place.

*U. S. S. Wyoming.*—The battle dressing stations are not adequately provided for in storage space or equipment. On this vessel the storage space is limited to a small locker in each dressing station. The lockers are altogether too small to hold the numerous stores which would be necessary in time of emergency. Small storerooms in addition to the regular medical storeroom should be built in each dressing station. Stores should then be distributed to the different storerooms, and in event of one or two storerooms being destroyed there would still be an available supply of medical stores and surgical dressings. The after battle dressing station should be equipped with an electric combination sterilizer and the forward battle dressing station with an electric instrument sterilizer. The British method of using Army bamboo stretchers as swinging cots for sick or wounded was adopted and 20 stretchers were rigged in the after dressing station. These can not be used in the forward dressing station because of lack of space.

During the past year various procedures to increase water-tight integrity of the ship have been adopted. One was to provide water-tight covers for all hatches on the gun deck. These hatches were always dogged down tight whenever there was a possibility of an action. In these hatch covers were small manholes which could be readily opened and closed and which provided an entrance and exit to and from the lower decks. These manholes were too small, however, to permit the passage of a Stokes stretcher. Therefore, a smaller stretcher should be provided in order to transport wounded to the dressing stations if this method of only using small manholes in the hatch covers is to be continued. It is strongly recommended that this and other vessels be equipped with a steam sterilizer sufficiently large to sterilize clothing and bedding, including mattresses.

It could be installed in the laundry or some other place where the steam connections could readily be made. The first-aid canvas bags should be replaced by metal first-aid lockers. It is impossible to keep these canvas bags clean or their contents sterile for any length of time. Metal lockers can be installed cheaply and could be secured with some type of lead seal which would prevent tampering with their contents.

### HOSPITAL SHIPS.

*U. S. Hospital Ship Comfort.*—This ship, formerly the steamship *Havana*, of the Ward Line, was commissioned as a hospital ship on March 18, 1918. The displacement of the ship is 10,000 tons; net tonnage 3,963; length over all 429 feet 10 inches; beam 50 feet 2 inches; draft when loaded 22 feet forward and 23 feet aft. The motive power consists of two triple-expansion engines of 10,000 horsepower. The maximum speed of the ship is 18 knots, and the coal consumption at this speed is about 175 tons per day. The economical speed is 14 knots at 100 tons of coal a day. The coal capacity of the ship is 1,060 tons in the permanent bunkers. Since coming into the naval service hold No. 2 has been used for a reserve supply. It holds 608 tons, giving a total capacity of 1,668 tons. The supply of coal at an economical speed in good weather conditions gives a steaming radius of 5,376 miles with a margin of 68 tons remaining. This radius of action is in practice materially reduced by head winds and seas, and on two westbound trips it has been necessary to coal at the Azores in order to have a safe margin left.

The complement of the ship is as follows:

Medical officers.....	10
Pharmacists.....	2
Pay officers.....	1
Paymaster's clerk.....	1
Dental officer.....	1
Chaplain.....	1
Deck officers.....	6
Engineer officers.....	5
<b>Total officers.....</b>	<b>27</b>
Crew: Deck, engineer, and hospital corps.....	365
<b>Total.....</b>	<b>392</b>

Ten life boats are provided, calculated to hold 490 persons. In addition there are two ambulance boats holding 120 persons, one motor gig holding 27 persons, and life rafts sufficient to sustain 700 additional. These figures represent the maximum capacity of these boats and rafts and in all probability would be greatly reduced in actual emergency.

Normal capacity for patients is as follows:

Sick officers.....	14
Isolation wards.....	44
Surgical ward.....	56
Medical ward.....	36
General ward.....	142
Convalescent ward.....	28
<b>Total normal capacity.....</b>	<b>320</b>

The accommodation for patients in an emergency and for a short run of from 24 to 48 hours could easily be extended to 700 cases. As an ambulance ship for bringing home the wounded from abroad, 410 patients, of which 290 may be bedridden cases, can be carried by putting 50 cots in the solarium and additional cots in the convalescent ward, hospital corps quarters and the mess rooms on the promenade deck. It is always necessary to leave some place to accommodate the sick of the ship's complement and also to allow for the isolation of infectious cases which may develop during a trip.

At first sight it would appear that the normal capacity of this ship for the patients is small, but by comparing it with that of the *Drina*, of the British Navy, it is found that while the *Comfort* carries one patient for each 12 tons of the net tonnage, the *Drina* carries one for 38 tons, so it seems that the space has been comparatively well utilized.

The ship was commissioned March 18, 1918. She left the Navy Yard, New York, April 22, 1918, and reported to the commander in chief, Atlantic Fleet, Base 2, April 24, 1918, for duty in connection with the fleet.

On May 19, 1918, orders were received to proceed to the Navy Yard, New York, and fit out for special foreign duty. Arrived at the navy yard May 21, and on June 20, all necessary preparations having been made for distant service, the ship anchored off Staten Island, N. Y., awaiting orders. On July 24 the ship was assigned to the third naval district for temporary service, to take the overflow of patients from the United States Naval Hospital, New York.

On October 5, orders were received to prepare for distant service. Under these orders, all marks identifying the ship as a hospital ship were removed and it was given the status of a troopship.

On October 10 the medical officer commanding was relieved by a line officer, and the former was ordered to the ship as a passenger. The ship left the navy yard on October 21, and in convoy sailed for Brest, France, arriving at that port on November 3. On November 4, in accordance with orders, the writer resumed command and hoisted the Red Cross flag.

The *Comfort* left Brest, France, on November 20 and arrived at St. Nazaire, France, on November 22, under orders to proceed to New York. Heavy seas and adverse winds were encountered, and it was found that the coal taken on board at Brest was of poor quality; so it was necessary to put in at the Azores for coal. The ship arrived at Ponta Delgada, Azores, November 27, where 11 additional patients were received, and left on November 29, arriving at Hoboken, N. J., on December 9, where the patients were disembarked.

On arrival at Hoboken orders were received assigning the *Comfort* temporarily to the transport force. While at Hoboken the ship was repainted as a hospital ship, in accordance with orders. The ship left Hoboken December 21 and arrived at Plymouth, England, on December 31.

During the period of this report, 1,269 cases were admitted or readmitted. Of these, 494 were discharged to duty, 28 died, 2 were invalided from the service, 699 transferred, 1 deserted, and 39 changes of diagnosis were made and readmitted; remaining, 3. The total number of sick days is 16,475. Seventy-seven surgical opera-

tions were performed. The dental treatments and operations numbered 1,536.

With the exception of the time this ship had the status of a troopship she has been commanded by a naval medical officer. Up to December 18, 1918, the officers other than those belonging to the medical corps, pay corps, dental corps, and the chaplain were in the status of naval auxiliary officers, and in most instances these officers were members of the Naval Reserve Force but placed on an inactive status while assigned to this ship. On the above date orders were received by the supervisor, Naval Auxiliary Reserve, at New York to change the status of all auxiliary officers on this ship to Naval Reserves, which was done, the master being given the rank of lieutenant commander and directed to report to the commanding officer for duty.

From the first, the members of the crew, other than those belonging to the hospital corps, consisted of regular service men and Naval Reserves. This combination of naval auxiliary officers with a naval crew was, from a disciplinary point of view, an undesirable mixture, as there was some evidence that certain members of the crew felt that "civilian officers," as they termed the auxiliary officers, had no authority over them.

The change of status of the auxiliary officers to that of Naval Reserves is a great improvement. Under the former status the officers felt a loss of prestige. There was, in the case of married men, a loss of pay; and as the auxiliary service is maintained only for two hospital ships, there was little or no chance for promotion, with the ultimate result that hospital ships would lose their best officers.

Under the existing conditions, with the deck and engineer officers in the Naval Reserve service, the crew consisting of regular service men and Naval Reserves, there are no naval instructions or regulations directly applicable to the administration of hospital ships.

The organization of the ship's company, the administration of discipline, and the assignment of responsibility has been in conformity with the spirit of the instructions relative to hospital ships with such naval regulations and instructions as may be applicable.

On the hospital ship the interests and duties of the medical department take precedence, except that the master must be unfettered in the discharge of his duty as relates to the navigation and safety of the ship.

It may be stated that the nonmedical part of the organization occupies on the hospital ship a position analogous to that of the medical department on a combatant vessel. In each case while occupying a subordinate position the navigator or medical officer is left free to carry out his specialized duties, and we have yet to hear of a line officer who would direct the medical officer how to operate or of a medical officer who would seek to instruct the navigator as to the measures to take in an emergency affecting the safety of the vessel.

The organization of this ship is regarded as consisting of two departments, a medical department and a nautical department. The former, directly under the executive surgeon, is divided into (1) hospital division, under the medical officer (nonspecializing), next in rank, having charge of the medical, surgical, and other activities

directly concerned with the care and treatment of the sick and injured; (2) dental division; (3) medical supply division; (4) supply division; (5) record division, religious, recreational division (chaplain).

The nautical department is divided into the deck and engineer divisions, under the senior reserve officer acting as master.

It has been desired to avoid any tendency on the part of any one to feel that the organization is divided into two, but rather that, as stated, it consists of two departments with but a single duty—to relieve the sick and wounded. To promote a feeling of unity and to remove any possible imputation of a discrimination, the separate messes for the wardroom and for the deck and engineer officers have been amalgamated.

The mess room on the boat deck, formerly used by the auxiliary officers' mess, should be converted into staterooms for deck officers, and the rooms vacated by these officers should be assigned to the junior engineer officers who now occupy uncomfortable rooms on the main deck among the enlisted personnel, which is somewhat detrimental to discipline.

The personnel and material records are kept by the medical department.

The liberty list, approved by the head of the deck and engineering divisions, is combined in the executive officer's office with that of the hospital division. There is always a deck officer (officer of the deck) and an officer of the day (medical) on watch, each doing duty in accordance with regulations as far as practicable on a hospital ship. Reports of offenses are brought by the heads of departments to the executive surgeon who investigates each case and if such action is required brings the man to mast.

During the year there were committed 170 minor offenses; 17 summary courts-martial and 39 deck courts have been awarded.

In the medical department the executive surgeon is assisted by the junior pharmacist who, in addition to being in charge of the medical supply division and of the special-diet kitchen, acts as a first lieutenant in making inspections and in the general upkeep of the spaces assigned to the medical department.

The medical officer immediately junior to the executive acts as a staff director, giving his attention to the supervision of the care of patients and of their health records in addition to his duty in his particular service. This officer keeps the executive and commanding officers constantly informed as to the condition of patients, their readiness for duty, recommends changes in diagnosis and medical surveys, and serves to coordinate the work of the various members of the medical staff.

The supply division, under the paymaster, is conducted in accordance with regulations. Under the commissary the food has been served in an appetizing condition, the bread and pastry being particularly good. The ship's store is a great convenience to all hands.

The medical supply division is under a pharmacist. Issues have been made to ships urgently in need of certain supplies and to Naval Base Hospitals 1 and 5, to the United States Naval Medical Supply Depot, Brest, France, and also to the naval medical officer at St. Nazaire.

The chaplain, in addition to his regular duties, has been active in securing musical instruments, a moving-picture machine, films, books and periodicals, and has assisted the patients in communicating with their next of kin.

All of the power boats are gasoline driven; consequently should the supply of gasoline fail, the ship would be dependent on pulling boats. For this reason a small steamer to replace one of the gasoline driven ambulance boats would be a desirable addition.

Ten hundred and sixty tons of coal are carried in the permanent bunkers, sufficient under ordinary weather conditions for 10 days steaming at 14 knots, which equals 3,360 miles. A reserve supply of coal amounting to 608 tons is carried forward in No. 2 hold. This space is filled by dumping the coal through all decks in the vicinity of the forward convalescent ward, convalescent mess hall, crew quarters, and medical storeroom, which is extremely disadvantageous. The coal then has to be passed aft by hand a distance of about 50 feet to the wing passages above referred to. The closing in of the cargo hatches is recommended, being desirable for several reasons. First, it would add to the water-tight integrity of the ship and to its structural strength. Upon the hurricane deck this hatch, at present, is secured by heavy timbers covered by a tarpaulin, which allows a certain amount of leakage below when seas are shipped over the bow. Secondly, by decking over this hatch on the main, lower, and orlop decks 1,200 square feet of deck space would be rendered available for some useful purpose, such as an increase in size of the forward convalescent ward, or the convalescent mess hall. This would provide for storage space for deck gear and be useful in other ways.

The storeroom spaces are ample and, in general, well arranged. It is to be regretted that the medical stores are not placed aft and the general supplies forward instead of the reverse, as now obtained. All supplies from the after storerooms have to be removed through the after convalescent ward, which is disturbing to the patients and tends to keep the ward in an untidy condition, and subjects the crew to contact with the patients. The supplies handled by the pay office have to be drawn daily, while access to the medical storerooms is infrequent.

Access to the deck from the living space for the engineer's force through the after convalescent ward and there is no other route available. It is recommended that the ladders from this space to the hurricane deck be inclosed by diamond-mesh partitions with a door which can be opened from the ward side, the latter being desirable in case of emergency when it is necessary to evacuate the ward quickly. This arrangement, while permitting the ward to utilize these hatches for ventilation, would prevent the use of the ward as a passage for men going on and coming off duty.

The hurricane deck outside of the deck house, as well as in the crew's space and after convalescent ward have numerous cargo hatches with high coamings, which materially reduce the available floor area. As these hatches serve no useful purpose, it is recommended that they be removed, leaving openings for ladders and ordinary supplies. This would allow considerably more room for bunking for the sick or for other purposes.

The location of the insane and brig cells is inconvenient, in that they are accessible only by means of doors through a water-tight



bulkhead, which should not be opened at sea, and in the case of accident involving the hull, might render it impossible to release the occupants of the cells. The construction of the cells is very light, as was demonstrated recently when an intoxicated man was confined. He not only broke out of one cell, but into another. These cells will have to be strengthened, and when this is done they should be made accessible from the space abaft of the water-tight bulkhead. It is believed, however, that except for the occasional use of these cells as a punitive measure, there is little need for them. As a matter of fact but few insane patients require solitary confinement and in most cases it is undesirable. If violent they are much better controlled with hot-water baths and sedatives. What is required is that a small ward, such as the forward convalescent ward or a portion of it, be prepared for the insane by means of diamond-mesh partitions and doors, for most of the mental cases simply need sufficient restraint to prevent them from wandering about the ship, with the possibility of doing damage to it or themselves.

The laundry occupies a position which is well adapted for ward purposes. The laundry could be placed on the lower deck immediately below its present situation, in which case it would be necessary to make some provision for drainage other than into the bilges. This could be accomplished by means of a tank and a motor-driven pump to carry the wash water overboard. The space now occupied by the laundry could be assigned for ward space, which would add approximately 30 bunks. As the after convalescent ward now has 142 bunks, to add 30 additional would make it rather unwieldy, so it would be better to divide this entire space into two wards of about 86 beds each, installing additional toilets and lavatories in the after part of the space now occupied by the laundry where there is now a single water-closet.

The toilet facilities are generally adequate and satisfactory except in the two convalescent wards. If the proposed changes are made in utilizing the space now occupied by the laundry and the installation of toilets, the situation in the after ward would be relieved. The forward convalescent ward of 28 beds has to share toilets and water-closets with 105 hospital corpsmen, and the facilities are insufficient.

The white tiling in various lavatories, galley, and pantries is very effective from an esthetic point of view. It is certainly conducive to cleanliness, but in parts of the ship where there is much working, as in the deck house, these tiles are already rapidly becoming loosened and falling out. The use of sheet zinc and white enamel paint for the walls appears to be preferable and certainly very much less expensive. Tiled floors in the galley and pantries are undesirable. When the ship is rolling and pitching, it is impossible to keep these floors free from grease, particles of food, and soapy water which render them so slippery as to be hazardous. At times during heavy weather it has become necessary to stretch lines across the galley to prevent the cooks from being thrown across the range and to permit them to get about. Concrete or brick flooring would be much better.

The service of this vessel has been one of comparative inaction, alternating with periods of marked activity under adverse conditions. While assigned temporarily to the third naval district the ship served to relieve the congestion of patients at the United States

Naval Hospital, New York. During the epidemic of influenza 262 cases were admitted. Of these 24 died, giving a mortality rate of over 9 per cent. The course of the disease was similar to that reported elsewhere. Prior to receipt of the first case, screens had been prepared separating contiguous bunks. When the patients came aboard the cases were treated as highly contagious. The attendants were required to wear gauze masks, coats, and gowns and the hands were required to be sterilized after handling patients. The hospital corpsmen and the crew were instructed in the prevention of infection. It is of interest to note that, although liberty was given, very few of the ship's company contracted the disease. There were no deaths or serious cases among them. It is particularly worthy of note that there was almost no evidence of the transmission of the disease to those directly in attendance upon the sick.

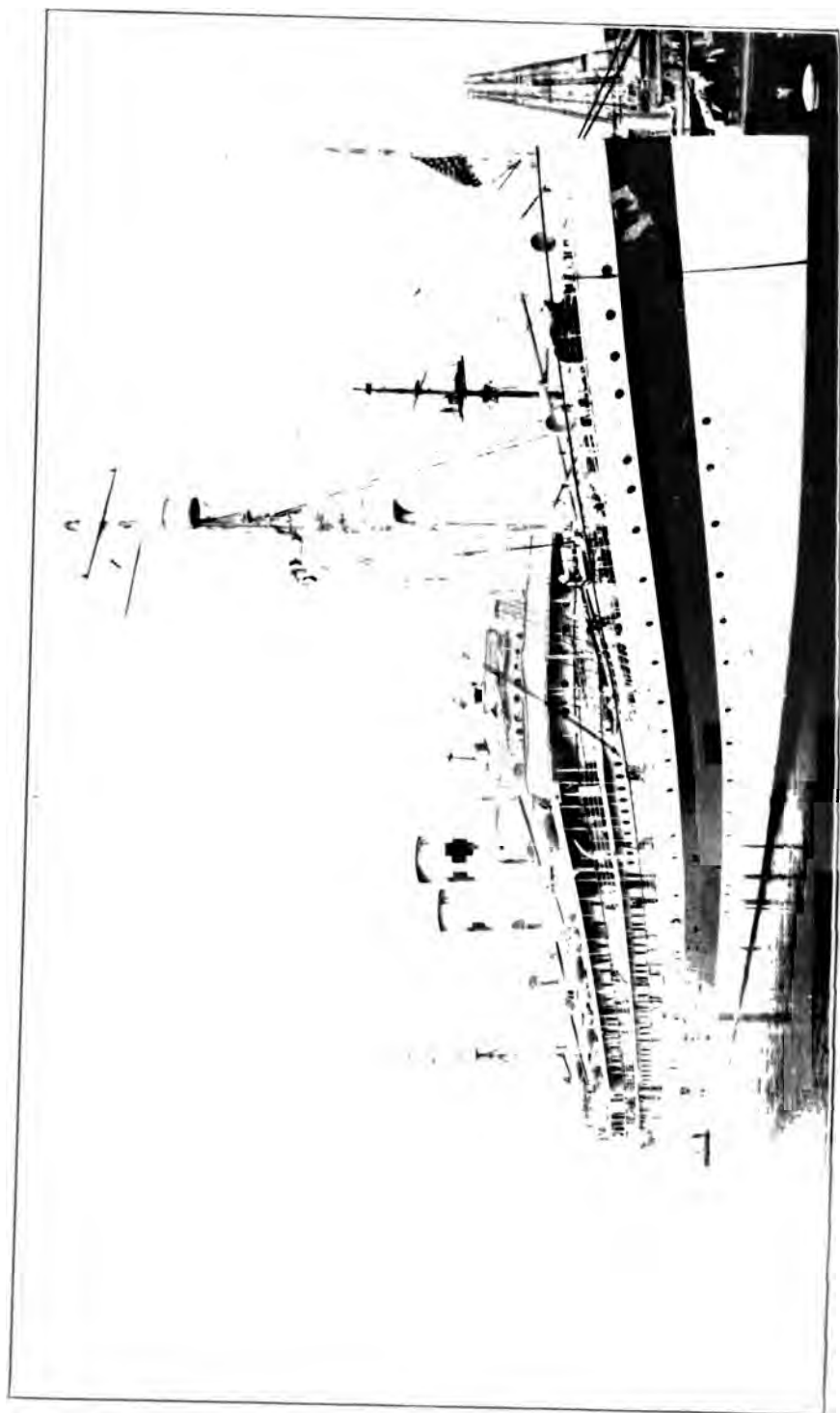
With the assignment of this ship to transatlantic service to bring home the sick and wounded abroad, its duty as a hospital ship has been succeeded by that of an ambulance ship. As such, with its complete equipment and large medical staff, it is clearly the function of this ship to carry the most seriously injured who require frequent and expert surgical attention. With this point in view, every effort has been made to impress upon the embarkation officers that the 300 bunks available for serious cases should not be utilized to carry patients who could equally well be carried by the regular transports, and from this number, up to 400 should be ambulant cases capable of climbing ladders and going to the mess room. It has been found difficult to convince some of the Army officials that the term ambulant with reference to a ship and the ability to climb ladders is not applicable to one-legged men, of which class some 50 were sent to the ship at St. Nazaire who had to be assigned to accommodations intended for strictly bedridden patients.

The majority of the cases received on this trip were such as could not have been properly attended to with the facilities usually afforded on transports. In order to take 400 patients, cots were placed in the solarium, forward convalescent ward and hospital corps quarters.

The patients (Army wounded) were brought to St. Nazaire from base hospital No. 8, at Savenay, by ambulance train, from which they were transferred to the ship in ambulances. The embarkation up to the gangway was by the Army embarkation officer and was well conducted.

In order to avoid confusion, through assigning patients to the wrong ward or to overfilling any one ward, and to be able to quickly locate any patient, the following system was inaugurated. A Dennison tag was prepared, having the ward letter and bunk or cot number entered on it in duplicate. These tags corresponded to the number of accommodations available. A medical officer was stationed at the gangway to make an assignment for each patient. The patient's name was checked off on the list furnished by the embarkation officer and was entered on the lower part of the tag designating his billet. This lower portion was then detached for the record office and files and the remaining portion was attached to the patient. In this way it was impossible for a patient to get lost by being sent to the wrong ward and there was no possibility of any one ward receiving more patients





Courtesy of Keystone Photo Studio, Philadelphia.

U. S. S. MERCY.

than there were billets. In the record office, the files were then arranged to show the patients' names alphabetically.

It is important in placing patients in bunks which are accessible on one side only that the cases be assigned so that the injured part will be most accessible and at the same time it is desirable to alternate the head and feet in reference to the near neighbors in the same level as well as those above and below.

The necessity for taking every precaution against droplet infection was shown by an outbreak of diphtheria in three widely separated wards within two days after embarkation. Contacts were immediately isolated and the personnel of the infected wards were cultured for diphtheria. In all, 12 positive cultures were discovered, of which 10 were clinically diphtheria. The death of 1 patient, found to have nasal involvement, occurred in spite of the use of antitoxin in large amount. There was practically no spread of the disease after the primary outbreak. Upon inquiry some of the patients stated that several patients who were suffering from "throat trouble" had been removed from beds adjacent to their own in the base hospital.

Among the most seriously injured were 50 cases of gunshot fracture of the femur. Extension was maintained by the Thomas splint and where indicated the Carrell-Dakin treatment was carried out. Over 350 daily dressings were made. Dichloramine-T was used to a considerable extent and with very satisfactory results. In spite of the excessive motion of the ship the fracture cases suffered no serious inconvenience and were disembarked markedly improved.

No radical procedures were carried out, such as the removal of the dead bone, or fixation of bones because of the unfavorable weather conditions for operative work and the comparatively short time that the patients were to be aboard.

On the second trip over, to Plymouth, England, the ship received 95 Navy cases and 238 Army wounded, a total of 333, which is 67 under the number desirable to take. Of these cases about one-half were in such a condition as to have been able to travel via transport.

It is understood that at this time practically all of the serious cases had been evacuated from the English hospitals.

*U. S. S. Mercy.*—The *U. S. S. Mercy*, formerly the *Saratoga* of the Ward Line, was converted into a hospital ship during the winter of 1917-18. She was minutely described in my last annual report so that a further description of her would seem to be superfluous at this time. Suffice it to say that she has a capacity of about 300 bed patients and 100 convalescents. Although a few minor defects have developed, she has proved to be in the main well adapted for the purpose intended.

The *Mercy* was commissioned as a hospital ship on January 24, 1918. She was fitted out at the navy yard, New York, and joined the fleet train at base 2 on March 20, 1918. From this time until July 22 she performed the ordinary routine duties of a hospital ship for the fleet at base 2, and, although kept busy, nothing of any unusual importance developed.

On July 22, 1918, the ship was temporarily detached from the train for duty under the commandant of the third naval district and was stationed at base 3, caring for overflow patients from the dif-

ferent hospitals of the third naval district until the latter part of September.

On September 27, in obedience to telegraphic orders, the *Mercy* rejoined the fleet at base 2 for duty during the epidemic of influenza. She remained on this duty until October 28. During this epidemic the ship performed her most trying, arduous, and important duty. On arrival at base 2, September 27, there were on board 195 patients. Almost immediately all the available beds were filled with the most desperate and virulent cases of influenza pneumonia, and the resources of every one on board were taxed to the utmost. The medical officers, the hospital corpsmen, and the officers and crew of the ship worked day and night and were untiring in their efforts for the welfare of the patients. On many days the number of deaths were more than 10, so that two teams working at autopsy and embalming night and day were unable to keep up with the work.

At this trying time no man was found wanting nor flagged in his efforts and zeal. The morale of all was maintained at the highest, and the men never wavered from their feeling of confidence, cheerfulness, and good spirits. It is impossible to speak too highly of the conduct of all, especially of those hospital corpsmen who were in intimate personal contact day and night with a great number of most virulent cases. Although the *Mercy* handled more of these than any other ship, no serious cases developed among the patients or personnel. There were only five cases in the hospital corps and ten in the crew.

Upon the waning of the epidemic, the ship was ordered to Hampton Roads, October 28, for coal, and while coaling received orders to proceed to New York to fit out for distant service. She arrived at the navy yard, New York, on November 1 and sailed in a convoy on November 4, arriving at Brest, France, on November 15, 1918. While at Brest she was attached to the Cruiser and Transport Force, loaded 298 seriously wounded stretcher cases and 100 ambulatory cases and returned to New York, arriving December 11, having touched at Bermuda, December 9, for coal. Two patients died between Brest and New York, one of septicemia and the other of gas poisoning. On this voyage, which was very rough, the ship proved to be a very good sea boat with a gentle, easy motion which did not disturb the patients to any great extent. She sailed on her second transatlantic voyage December 22 and arrived at St. Nazaire January 1.

The most serious fault of the ship has proved to be the method of fueling and the kind of fuel. She carries barely enough coal to make the transatlantic voyage and not enough to make a complete trip from Brest to the United States via the southern route. Her crew is so small that the ship's force can not coal her in any reasonable length of time. Coaling at Brest and St. Nazaire has proved to be a dirty, vexatious, and time-consuming job. It can not be denied that every hospital ship should use oil fuel, and the commanding officer has recommended that the *Mercy* be converted from a coal to an oil burner at her next general overhaul. He believes that the expense of this procedure would be more than overbalanced by the greater economy and facility of operation and the increased cruising radius, not to mention the welfare and comfort of the patients.

*U. S. S. Relief.*—The hospital ship now building at the United States Navy Yard, Philadelphia, Pa., is to be named the *Relief*. The launching is scheduled for November, 1919, but as work is done on her only when there is a lull in other yard enterprises, this date can not be accepted as final. This vessel was laid down in 1916 and on July 1, 1919, work was 33.1 per cent completed. Work was, of course, suspended during our active participation in the war as there was no possibility of her being made available for sea during the exigencies calling for transportation of sick and wounded.

*U. S. S. Solace.*—This year has been a very active one, though the number of cases treated and transferred is not as large as during the previous year. This is accounted for by the diminution in contagious cases as the conditions that prevailed in the spring of 1917 did not exist. Recruits were detained at the training stations for several months and not sent direct to ships as was done at that time.

A summary of the activities of the ship in the medical department follows:

Admissions and readmissions.....	2,851
Sick days.....	31,048
Supernumeraries carried.....	163
Transferred to hospitals.....	1,124
Returned to duty.....	1,075
Invalided from the service.....	176

## SUMMARY OF WORK.

Major surgical operations.....	160
Minor surgical operations.....	73
X-ray examinations.....	617
Eye, ear, nose, and throat:	
Minor operations.....	204
Examinations, refractions, treatments.....	6,651
Dental work:	
Examinations, treatments, fillings, operations, etc.....	2,122
Laboratory examinations and analyses made.....	10,141

## UNITED STATES PACIFIC FLEET.

The ships of the force have been based on Montevideo, where a United States Naval Depot was established which rendered service of the utmost value to the ships. The ships of Division 1 engaged in patrol work off the Brazilian coast and the River Plate in conjunction with British and Brazilian vessels.

Cruising on patrol, especially in tropical waters, with the ships darkened and a resultant lack of good ventilation and other inconveniences, was cheerfully borne by all, and the ships did their allotted tasks well, although the personnel was keenly disappointed in not having a more active part in the war.

If we disregard the epidemic of influenza which prevailed throughout South America, the ports visited, with the exception of Bahia and Pernambuco, are to be considered healthy. Smallpox is endemic in Rio, and the San Sebastian Hospital of 120 beds is usually filled with patients with this disease. The cities of Bahia and Pernambuco, especially the former, are without proper sanitary supervision, and yellow fever is endemic in both localities. There is no such organization in Brazil as a federal quarantine service. Each of the States has its own sanitary organization. Owing to the prevalence of yellow

fever in Bahia this port was abandoned as an additional base for the force. The sanitary services of both Uruguay and Argentina are thoroughly competent and rigorously follow modern sanitary laws and regulations.

An important feature of a medical officer's duties on this station is combating the virulent venereal diseases which are especially prevalent in Rio. Syphilis, gonorrhea, and a particularly virulent chancroidal infection of a phagedenic type and invariably accompanied by a suppurative inguinal adenitis are met with. The indifference with which venereal diseases, particularly syphilis, are viewed in Brazil is amazing, and the municipal and federal authorities are doing nothing to check or control these diseases. In Montevideo a campaign against venereal diseases has been inaugurated and free clinics for their treatment have been established by the Government.

In the report for 1917, submitted by my predecessor, mention was made of the prevalence of hookworm disease in Brazil and the work which the Rockefeller Foundation is doing in eradicating this infection. The work is being ably supervised by an American physician, Dr. Hackett, who has numerous native assistants and enjoys the cooperation of the Brazilian authorities.

Throughout the interior of Brazil fully 70 per cent of the rural population are infected with Brazilian trypanosomiasis. The discoverer of the causative factor in this infection, Dr. Carlos Chagas, head of the Oswaldo Cruz Institute, is working energetically to find some cure for this veritable scourge. An American, Dr. Crowell, of the Rockefeller Foundation, is working with Dr. Chagas in investigating the pathology of this disease.

It has been the aim of the force to be as self-supporting as possible, and only those cases which were absolutely in need of hospital treatment have been transferred ashore. At the onset of the influenza epidemic, when a hospital was urgently needed, and would undoubtedly have been the means of saving many lives, no hospital conveniences were available owing to the thousands of cases in the city, and it was not until we were over the critical period that the Brazilian Government was able to offer us the use of 100 beds in the Central Army Hospital in Rio. This offer was eagerly accepted.

There are in all of the South American cities which we visit many native hospitals. These are for the most part very poor, mainly because of the questions of diet and language. We have used the hospitals established for the care and treatment of Americans and British residents. These hospitals are under the management of British and Americans and supported largely by subscriptions from among these foreigners. They are fairly well equipped and have excellent staffs and English-speaking nursing corps.

The Stranger's Hospital in Rio, delightfully situated, has 25 beds. It is fairly well equipped. Dr. Franklin P. Pyles, an American surgeon practicing in Rio, has been untiring in his attention to our cases, as have also Drs. Ramos and Banderia, two Brazilians on the hospital staff.

In Montevideo we have used the British hospital. This is a modern construction, only completed during the last few years, and has a competent nursing staff. Dr. Garcia Largos, an eminent Uruguayan surgeon and professor of surgery in the university, has given his best efforts in the care of our cases.



Buenos Aires has the largest and best equipped of any of the foreign hospitals. It numbers a large professional staff, of whom Dr. John O'Connor has been especially solicitous in caring for our cases.

The attending surgeons and internists who have had charge of our men in these various hospitals have given their services free of charge during the period of the war. It is expected that when peace is signed the customary fee of the hospital staff will be asked.

Except for the epidemic of influenza which attacked the U. S. S. *Pittsburgh* during October and November, the health of the personnel has been uniformly good. Such infections as mumps and measles, which were so prevalent during the preceding year, each draft from home bringing a new focus, were few in number, the U. S. S. *Pittsburgh* reporting only 20 cases of mumps during the year and none of measles. We were happily free from any other serious infections. The ships of the force were used as training units. Drafts of recruits were received every quarter from home and trained men sent north. This constant change of officers and men has materially increased the number of sick days.

The men received were recruits and were more susceptible to disease as well as to injuries of all kinds. It is extremely gratifying to note the mental and physical development which a few months showed in these drafts received from home stations. The greater part of the year has been passed in tropical waters.

The force lost during the year 60 of its personnel by death, all enlisted men. Fifty-eight of these deaths were due to influenza and its complications (56 pneumonia and 2 influenza). One death of an enlisted man attached to the U. S. S. *Cyclops* occurred by drowning in Rio Harbor, and one death occurred on the U. S. S. *Orion* on her way to Rio. All but 42 of these bodies were embalmed and shipped to the United States. On January 30, 16 standard metal caskets were received on the U. S. S. *Cyclops* and the U. S. S. *Pueblo* brought 12 more in November. The cost of metal-lined hermetically sealed caskets with shipping box is \$750 United States gold on this station. Our metal caskets are in store in Bahia, Rio, and Montevideo.

Forty-two bodies have been interred in the San Francisco Xavier Cemetery in Rio. All but one of these were victims of the influenza epidemic, the exception being the body of the enlisted man attached to the U. S. S. *Cyclops* who was drowned and due to the long immersion in the water was so badly decomposed that shipment to the United States was impossible. The 41 victims of influenza are interred in the same plot of the cemetery, each grave marked with a simple wooden cross on which the name of the deceased is stenciled, and in addition each grave is numbered in accordance with the cemetery regulations. A plan of the plot, designating the individual graves has been forwarded to the bureau and one given the cemetery and a third copy is in the files of the consulate at Rio.

A well-balanced ration has been issued on all the ships. While the U. S. S. *Glacier* was with the force ships provisioned from her. Her detachment from the division on April 2, necessitated the establishment of a supply depot ashore. Two well-constructed buildings were leased on an island in Rio Harbor, and the depot is under the charge of a supply officer. Frozen meats are available at all ports along the coast as far north as Rio. A second supply depot estab-

lished at Bahia has been abandoned. The local markets offer a varied assortment of fruits and vegetables.

Medical supplies have been of good quality and ample. The new supply table issued by the bureau is a marked improvement on the old one. The uncertainty in shipping facilities to South America has often delayed the receipt of requisitions as much as four months after the time of forwarding the requisition. The cost of medical and surgical supplies ashore is almost prohibitive, and only in cases of extreme urgency has the purchase of them been sanctioned. During the epidemic it was necessary to purchase some supplies in the open market, and some were requisitioned from the U. S. S. *Pueblo* for the U. S. S. *Pittsburgh*.

There has been criticism by our medical officers regarding the intravenous use of arsphenamine because of the very severe reactions obtained in almost every case. This method of giving it has been abandoned, and the use per rectum has been practiced. This is not followed by severe reactions, and the clinical results appear to be about as good as with the intravenous method. "Billon," a French preparation, is extensively used ashore and has been given many times on board with apparently beneficial results.

During the past 12 months 1,854 treatments have been given by the dental officer, who has a well-equipped office on the flagship.

The flagship was at Rio when influenza first made its appearance on the east coast of South America. Our first intimation of its prevalence in these southern latitudes were reports of its appearance in Bahia and Pernambuco. On September 17 the steamship *Demerara* arrived in Rio from Lisbon, via Dakar, Africa. She had had four deaths from broncho-pneumonia complicating influenza on the trip across, and on her arrival in Rio had many cases of influenza on board. No attempt was made by the health authorities of the port to quarantine the ship or her passengers. It seems fairly well established that the *Demerara* was responsible for the introduction of the disease into Rio, and from here it spread throughout the States of Sao Paulo, Parana, Rio Grande do Sul, and Minas Geraes, following the routes of travel from Rio.

The Brazilian statistics are unreliable, but from authoritative sources it is estimated that in the city of Rio, with a population of nearly 1,100,000, there were at least 700,000 cases, with between 30,000 and 40,000 deaths.

On October 7 the first cases were admitted on the U. S. S. *Pittsburgh*. These were immediately isolated, but the infection spread rapidly and by the end of the first week there were 604 cases on the sick list. Army cots were rigged on the main and gun decks, forecabin, and lower bridge. We fortunately had a large number of hospital corpsmen, but many of them were taken ill, so volunteers from other ratings were detailed as helpers in caring for the sick.

There were no hospital facilities available ashore as every civil and military hospital was overcrowded.

During the first 10 days the weather was very bad. There was a continuous dismal rain with a raw cold wind blowing most of the time and this weather was not at all favorable and added, no doubt, to our death rate. Unfortunately it was not possible for the U. S. S. *Pittsburgh* to leave port as military necessity made it imperative

that we remain. Later when this urgency was relieved it was not possible to leave Rio because of the crippled condition of the personnel.

On October 22, two weeks after the beginning of the epidemic, the Brazilian authorities offered us the use of 50 beds in the Army Central Hospital in Rio. This offer we eagerly accepted and the number of beds was increased to 100 in a few days.

The hospital is of modern design and construction; the pavilion which we occupied was finished in 1914. It is delightfully situated in the outskirts of Rio, 45 minutes by trolley from the center of the town. The question of transportation was easily solved by using the large baggage trucks of the Rio Light & Power Co., the trolley line going directly to the entrance of the hospital. Patients were transported ashore on army cots in our large motor sailers and then without change were loaded in these large trolley cars and three-quarters of an hour after leaving the ship were in the hospital without much discomfort or detriment to their condition. Stretcher bearers were detailed from the ship and were assisted by employees of the trolley company.

Some of the hospital corps were detailed from the ship and also men of other ratings as helpers. The fleet surgeon took personal charge of this phase of the work. A total of 120 patients was transferred from the ship and treated in the hospital.

The hospital was organized as one of our own hospitals. The fleet surgeon received hearty cooperation and support from his assistants and worked in perfect harmony with the Brazilian authorities.

The one great problem in the hospital which confronted us at the outset was proper rationing of the sick. Different national customs as regards food and the handicap of the language made it impossible to obtain the best or satisfactory results from the hospital cuisine and, lastly, the scarcity of foodstuffs in the local markets made it impossible to subsist the patients from the hospital menu. This difficulty was solved by rationing the patients from the ship.

A range for our use was set aside in the hospital kitchen. Two cooks were detailed from the ship, the necessary gear supplied by the supply officer, and this, with the assistance of a Brazilian helper, gave us the required kitchen personnel and utensils. The automobile allowed by the bureau for use in connection with the hospital brought daily supplies from the ship to the hospital and a suitable well-balanced ration was established.

In this connection the assistance which we received from the American Patriotic Society and the Rio Light & Power Co. was of the greatest value. They were able to obtain fresh eggs, milk, chickens, etc., direct from the country, and these, together with butter and fresh bread, fruit, and ice were daily supplied by them. In many other ways valuable help was freely given. A telephone direct to the ward was installed and many useful articles, such as ice chests, bedside screens, kitchen utensils, a small electric range for the diet kitchen, coke for burning in the range, and innumerable other things were supplied by them.

The minister of war, in addition to giving us the use of the hospital building, supplied special medicines and in every possible way attempted to help us. He refused to consider any payment. We

occupied the hospital for one month, and it was of the greatest benefit to all.

The Woman's Auxiliary of the American Patriotic Society, of which Mrs. F. A. Huntress is president, gave us pajamas for the sick on board as well as in the hospital, made jellies and custards and supplied us with books and other reading matter.

Unfortunately there were many pneumonias whose condition did not warrant transportation. The mere fact of our having a hospital had a cheerful influence on the whole personnel. If these hospital facilities had been available at the outset of the epidemic, we are firmly convinced that we would have saved more lives. The *Mina Geraes*, a Brazilian dreadnaught, with a complement of 900, had practically her whole personnel affected with influenza, yet only had 10 deaths. This was largely due to the fact that her sick were immediately removed from the ship and transferred to their naval hospital.

It is hard to imagine a city so completely demoralized as Rio was as a result of the epidemic. Instead of anticipating from the experience of other countries and organizing their resources and forces they stood idly by, and not until they were so overwhelmed by the disease that proper organization was next to impossible did they awaken to the needs of the populace.

The beginning of the second week found all the business and social life of the metropolis at a standstill. Of a population of nearly 1,100,000 fully 700,000 were affected with the disease. It attacked most virulently those between the ages of 18 and 45 years; the very young or those advanced in years escaped entirely or were very mildly affected. The deaths occurring at these ages were largely due to lack of proper care and nourishment.

The scarcity of fresh provisions was a serious handicap in combating the disease. Such necessities as milk and eggs were difficult to obtain, or when purchaseable were only to be had on the payment of exorbitant prices. Even the proprietors of drug stores evidenced a spirit of gain during this veritable plague and charged exorbitantly for ordinary drugs; an ounce of quinine sulphate selling for \$100 gold (U. S. currency). Graft and extortion was in evidence everywhere. Eventually the Government regulated prices and assumed control of food supplies; established temporary hospitals and dispensaries, but not until the epidemic was decidedly on the wane, and not until a new director of health was appointed.

The scenes about the city were distressing, the dead were allowed to remain in their houses and even in the streets for days and the cemeteries with thousands of corpses lying about awaiting burial was a frightful picture which is indelibly stamped on one's memory. It was necessary to detail working parties from the U. S. S. *Pittsburgh* to bury our dead, as the cemetery authorities were helpless.

The epidemic spread with astonishing rapidity along the lines of travel and the same tales of horrible conditions existing throughout the neighboring states were reported.

Ships in home waters have the opportunities of our own laboratories, X-ray apparatus, etc., to aid the medical officer in diagnosis and therapeutics, but those operating on foreign stations are, in the majority of instances, prevented from using these aids unless the patient himself bears the expenses attached thereto. It is therefore

recommended that if the medical or dental officer needs it in diagnostic or therapeutic work a similar aid in the diagnostic work should be allowed by the employment of bacteriological work for the Wassermann tests, etc.

*U. S. S. Marblehead.*—On arrival at Unalaska, June 14, 1919, word was received from the U. S. S. *Vicksburg* of sickness at Akulan, so the ship proceeded thither after organizing a medical relief party consisting of 8 medical officers, 11 female nurses, 1 male nurse of the United States Public Health Service, and 12 hospital corpsmen. The party was divided into 6 medical units, each completely outfitted with medical stores, bedding, provisions, etc. These units were landed at various points along the course. The influenza epidemic had already spent itself, but there were many cases of destitution, unburied bodies, etc. Distribution of food, blankets, etc., was made and the dead were buried.

*U. S. S. Pittsburgh.*—The intravenous administration of the new product arsphenamine in the treatment of syphilis has been discontinued on account of the very severe reaction obtained in practically every case. For some time we have been giving it by rectum. The clinical results appear to be about as good as with the intravenous method. Owing to the lack of laboratory facilities it has been impossible to check up the results by Wassermann tests. A great deal of the French product "Billon" has been used and is very satisfactory both in ease of administration and in the freedom from reactions. The total number of sick days for the year on this ship was 15,469, giving a percentage of 3.7.

#### UNITED STATES ASIATIC FLEET.

The health of the personnel has not been what it should be, but a variety of circumstances relating to both physical and moral welfare must be taken into consideration. The operations of the fleet extend from the Tropics to Siberia and the personnel comes in contact with races largely ignorant of sanitation and the victims of almost every known contagion. Smallpox has been epidemic in Manila and Olongapo, in China and Japan. Dengue has been present on the Yangtse, cerebro-spinal meningitis at Hong Kong, cholera at Cavite, typhus and typhoid at Vladivostock, and influenza generally on the station. Some of the ships on the station are old and very defective from a sanitary point of view.

While the number of sick days for venereal disease has been high, this is in part due to the practice, observed on the U. S. S. *Brooklyn*, and encouraged by the fleet surgeon when inspecting other vessels, of keeping every case on the list while in the contagious stage. There is a lack of uniformity in the way medical officers use the binnacle list and the sick list. The former is only intended for men excused for a period of 24 hours or less, owing to the slight and temporary character of their ailments. When, at the expiration of 24 hours, a man is still not able to do duty his name should be carried on the sick list, but it is well known that many medical officers carry a man on the binnacle list for several days, as can be proved by comparing the number of sick shown by the daily 10 o'clock reports with the monthly reports. When the two lists are properly used and the

venereal cases are handled as described above there will be a reduction of the number of admissions but an increase of sick days.

During the war, when the need for medical men was so urgent both at home on the Atlantic and in France, the requirements of this station were not insisted upon but now it is urgently recommended that the complement of the station be adequately filled. The proper organization of the medical department of our ships and of our hospitals can not be maintained without the necessary personnel. At the present there are numerous vacancies and no allowance has been made for casualties.

Though we have now occupied the Philippines for 20 years, the general sanitary situation at Cavite, San Roque, and even at Olongapo is a sad reflection on American administration. Where villages are actually outside of a naval reservation they nevertheless demand attention at our hands if they furnish the labor for those reservations and are habitually frequented by our personnel. They should be under the sanitary and police patrol of the Navy and this subject could with propriety be taken up with the Philippine Government and the Philippine Health Service.

Though there is ample ground reserved for the Navy at Bagio, Mountain Province, P. I., and the Army has taken advantage of opportunity to utilize this valuable spot, we have wholly neglected it, though a summer and recuperation resort could be established there with every promise of gratifying results.

The commander in chief in a special report has recommended to the Bureau of Navigation and to the headquarters of the Marine Corps that all complements on the station be filled and that the tour of duty be fixed at 2 years. Particular emphasis was laid on the importance of carefully considering the age, experience, and character of officers detailed to duty on the Asiatic Station, having in view the more conspicuous and representative part necessarily played here by naval officers therein not only with the representatives of all the European nations but with native oriental people radically different in standards and development from our own.

The following sentences are extracted from the commander in chief's report:

"This station is composed of many widely scattered units of various sizes, where independent command is necessarily exercised by the commanding officers, most of the time far removed from the supervision and influence of the commander in chief, and even in many cases from their immediate superiors, their division commanders. The size of the unit is often no measure of the importance of the duty performed, and officers of junior grades are entirely dependent upon their previous training, instruction, and good sense in the exercise of a wide discretion and judgment in difficult and to them unusual duty.

"In particular young officers at present hold a number of independent commands of small gunboats, and in addition to being the representatives of their country at all times, they have actually to meet international complications in their official capacity. Along the Yangtze there are commercial questions to be settled and not infrequent revolutions wherein an experienced officer with his mature judgment is necessary to handle these situations in a satisfactory manner.

"The inhabitants of the countries bordering the waters of this station being of an alien (oriental) race and their customs being quite different from those of the United States there is a lack of social advantages at the station and the pleasures of the personnel are reduced to the society of a limited number of foreigners living at the various points visited. It is a fact well known to those who have performed duty on this station that rules of conduct do not obtain with the same strictness in the Far East; that temptation is more insidious, and that slips in moral conduct are more easily hidden and if discovered more readily condoned than in the United States.

"The above-mentioned situation makes a particularly strong reason for sending no officers to this station while their habits are still in a formative stage, and for this reason the commander in chief has recommended on the complement sheet that no officers should be sent to this station with less than four years' service out of the Naval Academy for independent duty on three years' cruising ships.

"There is a lack of recreation and amusement facilities on the station. In Manila there is a Y. M. C. A. primarily for the use of the civilian population. It is not popular with the enlisted men and beyond a recent effort of the Army and Navy to institute a soldiers' and a sailors' club in temporary quarters, there is no separate and distinct place for their amusement and comfort. At Cavite conditions are more unsatisfactory. Olongapo has a satisfactory Y. M. C. A., but no other advantages.

"In China except for some sporadic efforts on the part of some interested Americans and commanding officers, there are no Y. M. C. A. or other places strictly for the entertainment and comfort of enlisted personnel. Lately information has been received of some effort in this direction by the Y. M. C. A. officials at Shanghai. At Peking there is a Princeton Y. M. C. A. for civilians which is not popular with the enlisted men. The only amusements are those originated by themselves within the Legation limits.

"In Japan there are no places set aside for the recreation of enlisted men; but as the United States ships only visit Japanese ports occasionally and for short stays such places of recreation are not necessary.

"In Vladivostok there is a very excellent Y. M. C. A. which no doubt will be maintained as long as the Army remains in Siberia.

"The commander in chief considers that the health, comfort, and contentment of the enlisted personnel as well as the maintenance of their moral characters, calls for the provision of places for athletics, amusement, and recreation of the crews while ashore.

"In this connection there is quoted herewith a paragraph of a letter from the commanding officer U. S. S. *Monocacy*, August 19, 1919, to the commander in chief with reference to Chunking, China:

"\* \* \* men are kept at the bungalows, and the other half on board the ships, alternating weekly. The department should provide a building ashore for our enlisted men, as there is practically no place for them to go when on shore liberty and it would aid their health and contentment if good sleeping quarters were provided for a part of them ashore. I believe this can be done at a cost of not over \$100 per month, and it certainly would be money well expended."

"The commander in chief intends at the first opportunity to have a report and recommendations from commanding officers who are on

duty in China and on the Yangtze River relative to the manner in which these places of recreation can best be established, together with the probable cost of maintenance. A detailed report will then be forwarded to the department with recommendations.

"For the past 10 years the great majority of the medical officers on this station have recommended that the tour of duty be limited to two years in the Tropics. The commander in chief earnestly indorses this recommendation and in so far as is practicable will carry it out by shifting duty of men and officers after one year's duty in the Philippines. He recommends that the department accept the general policy of returning officers and men to the United States after two years' service on this station."

*U. S. S. Brooklyn.*—Two big explosions that occurred in December overshadow the few usual minor accidents such as broken hands and collar bones. The first one happened in Yokohama, December 9, while coaling ship. It was a "spontaneous combustion" of coal dust. Forty-four men were injured, of whom 10 died. Thirty-seven of the men were transferred to the United States Naval Hospital, Yokohama, immediately after the accident. The remainder were treated aboard. The second accident was a gasoline explosion at Kobe, nine days later. Two officers were badly and five enlisted men slightly burned. These cases were all treated aboard.

*U. S. S. Mohican.*—It is recommended that a helmet, suitable for the Tropics, be substituted for the present regulation head covering, and that this helmet be made mandatory for this station except on special occasions.

*U. S. S. Monocacy.*—While on the upper Yangtse, above Ishang, China, the *Monocacy* is at Chungking a greater part of the time. There are two mission hospitals in the city, one conducted by the French Catholic Sisters and one by the Canadian Methodist Mission.

A French army officer, attached to the French consulate at Chungking, is in charge of the medical and surgical services of the French Catholic hospital and has kindly placed at the disposal of the *Monocacy* both the hospital and his supply of fresh vaccines and serums. Most of the latter come from a French laboratory in Chengtu, a city about 185 miles distant from Chungking. Reports from local practitioners are that the products of the above-mentioned laboratory are satisfactory.

The British navy maintains two ships on the upper Yangtse. They are both of the same type and size as the *Monocacy* but with a white complement of only about 20 each. The French also have one gunboat on the upper river. Like the *Monocacy*, they spend the greater part of their time in Chungking. At the above-mentioned place the British Government provides two cottages and one large canteen building on shore for the accommodation of officers and crew. The bungalows are located in the hills, about 3 miles from the place where the ships anchor. One building is reserved for officers, and one for enlisted personnel. In addition to buying the buildings, the Government provides £75 for the upkeep. They are furnished with beds, cooking facilities, sick bay and near-by recreation grounds and tennis court. It has been the practice of the commanding officers of the two ships to send a portion of their crews to these bungalows for periods of about two weeks at a time. The



sick and convalescent are also sent there as the medical officer sees fit. The large canteen building spoken of above is on the beach near the winter anchorage. The building is rented and furnished with a billiard table, reading room, etc., by the Government. The French establishment is a large building with accommodations for officers and men and a machine shop. It is located on the beach very near the ship. In the opinion of British and French officers, these shore accommodations are conducive to better physical fitness and contentment of the entire personnel.

In Chungking there are no public amusement facilities nor Y. M. C. A. buildings as on the lower river. As a consequence, the enlisted men of the United States Navy have no place in which to congregate and no form of amusement or recreation unless provided at their own expense or at the expense of others. It is the opinion of the medical officer that if some place were provided on shore where the men could gather and indulge in clean sports, athletics, reading, etc., they would not only benefit physically but be under better control.

*U. S. Asiatic Submarine Flotilla.*—The medical officer repeats the oft-made suggestion that a cruise in the Tropics should not exceed two years. His recommendation is concurred in by the commander in chief. While service in the Tropics is compatible with good health, the testimony of medical officers is unanimous regarding the effects of life aboard ship in hot climates. Such a life differs very materially from that ashore in houses adapted to local conditions where punkahs, wide verandas, cheap service, long siestas, and occasional trips to mountain resorts make the prolonged hot seasons more tolerable. On shipboard, even when military routine is modified in a measure, many of the unavoidable circumstances of service make for privation and discomfort which, when long-continued, destroy morale and lower physical resistance. To-day, when so much attention is devoted to the spiritual, mental, and physical welfare of the sailor, it seems important not to overlook the needs of those performing duty in remote parts of the world. This is particularly true of men serving on submarines, torpedo boats, and other small craft in cramped quarters and with few opportunities for legitimate recreation and amusement. There is a particular need for welfare work for our men in the Far East, and it is hoped that the recently created sixth division of the Bureau of Navigation will extend to them the benefits of its labors.

In general the health of the men of the submarine flotilla has been good. Complaints of ear trouble are frequent. This trouble begins as a gradual impairment of hearing and in some cases is followed by otitis media.

There is a marked difference between boats of the *B*-class and the *A* boats. The surgeon in the three-hour submergence on a *B* boat found that the temperature did not rise above 90 F. and the crew were comfortable throughout. On the *A* boats, on the contrary, the quarters are cramped and noisy, and the vapors incident to oil combustion, etc., make them uncomfortable at the end of an hour.

*U. S. S. Villalobos.*—The number of admissions to the sick list for venereal diseases on the ship has been unusually low, considering the open prostitution in Shanghai and the prevalence of syphilis and gonorrhea among the inmates of the bawdy houses. The men have been given lectures on venereal prophylaxis. They are ordered to return to the ship immediately after exposure, under penalty of being

punished if this order is disobeyed. Frequent venereal inspections for concealed venereal infection have been held during the year. No venereal diseases have occurred where prophylaxis has been administered within an hour after exposure. Two cases of gonococcus infection and one case of syphilis occurred where prophylaxis had been administered from five to seven hours after exposure. The Young Men's Christian Association has done much in keeping down the percentage of venereal diseases through providing club rooms with proper environment for the men while on liberty.

The first case of diphtheria aboard this ship during the past year occurred in March. At this time the personnel was examined for suspected carriers and a prophylactic dose of 1,000 units of anti-diphtheritic serum was administered to the ship's personnel. It is believed that this first case became a diphtheria carrier on his return from the hospital, as there have been four other cases of diphtheria at different times since, and this first case has just returned from the hospital after having a second attack of diphtheria. A tonsillectomy will be performed on this patient in the near future in the hope of clearing up the source of the past cases. The last three examinations and cultures from the nose and throat of this case have been negative. An examination of the entire crew was made and prophylaxis given at the time of the last case, but no carriers were found. Material for Schick's immune reaction was not available at this time.

#### CARGO CARRIERS OF THE NAVAL OVERSEAS TRANSPORTATION SERVICE

The United States Navy manned and operated during the war many cargo vessels. On board these vessels it was not practicable to place a commissioned medical officer except on special request of the commander in case of a particularly long or hazardous voyage because of the large number of such vessels and the necessity for the utilization of doctors on board ships of larger personnel. Most of these cargo vessels carried a Navy crew of about 100 persons or less. Separated many days from port, the men who became sick and injured on board received first-aid care from a Navy hospital corpsman especially selected and trained for this important medical duty. How well the hospital corpsmen assigned to this independent duty performed their work is evident when it is realized that approximately 30,000 men on vessels of this type went through the influenza epidemic while the individual vessels were in European ports, in ports of the United States, or on the high seas, and not a complaint has been heard that a single man of the thousands taken ill was in any way neglected or that the first-aid care given during this epidemic was insufficient in any way. This test of the hospital corps personnel on board these vessels has proved the efficiency of hospital corps training and the Medical Department of the Navy is proud of the ability shown by these men.

Cargo carriers were factors of immense importance in supplying food, clothing, munitions, ordnance, etc., to the Navy and to the Army in Europe. Some of these vessels went to more distant ports on special missions.

The official establishment of the Naval Overseas Transportation Service, or N. O. T. S., took place January 9, 1918, when the Office of Naval Operations assigned a fleet of 72 vessels to the N. O. T. S.

for operation. These vessels were ships which previously belonged to the merchant marine, but were now taken over in order to expedite the transportation of supplies to our Army in France and other places. The personnel was changed so that civilian officers and crews were taken off and reserve officers of the Navy and a mixture of reserve and regular enlisted men of the Navy took their places. These ships ranged as a rule from 3,000 to 10,000 tons burden and carried a total complement of from 75 to 175 officers and men.

By August, 1918, the N. O. T. S. fleet had reached a growth of 180 ships, of which 80 per cent sailed from the third naval district; thus the port of New York became on account of its activity the virtual center of the N. O. T. S.

As the growth of the N. O. T. S. expanded to sizable proportions, it became necessary to provide adequate medical service for these ships. In order to accomplish this a medical officer of the Navy was detailed August 16, 1918, for special duty in the supervisor's office at 45 Broadway. This officer upon reporting found one absolutely blank office devoid of everything save a telephone. At that time the daily average of ships in port amounted to 35, and the daily number in addition making convoy to 6.

As long as medical officers were not available in sufficient numbers to permit their being assigned to duty on board N. O. T. S. vessels and pharmacists' mates had to handle the medical affairs of the ships in over 85 per cent of the vessels concerned, it became at once apparent that the prevention of disease was the paramount duty, so that the work thrown upon pharmacists' mates should be reduced to a minimum.

The growth of the N. O. T. S. in vessels is shown in the following two tables. It will be seen that the period of greatest activity was reached shortly after the armistice. The first table shows the number of vessels in the N. O. T. S., including those in every naval district. The second table shows the number of vessels which at any given time were in the port of New York, and therefore stood in need of medical supervision.

TABLE 1.—*Growth of N. O. T. S.*

	Ships in operation.	Assigned.
August, 1918.....	180	285
September, 1918.....	245	348
October, 1918.....	280	405
November, 1918.....	342	452
December, 1918.....	375	512
January, 1919.....	380	477

TABLE 2.—*Ships in port (average per day).*

	Loading and repairing.	Making convoy.	Total.
August.....	35	6	41
September.....	36	5	41
October.....	46	6	51
November.....	50	5	55
December.....	67	(1)	67

<sup>1</sup> No convoy.

It is interesting to note that shortly after the armistice was signed the N. O. T. S. operated more vessels than the combined prewar strength of the Cunard, North German Lloyd, and Hamburg-American steamship companies.

Most of the N. O. T. S. vessels went abroad under convoy, and when a date was given to a ship on which to "make convoy" it was absolutely imperative that nothing should occur to prevent her from being on time. This made it a rather difficult task in many instances to supply a medical outfit, on account of the shortness of time between the arrival of the ship in port and her departure. Many of the N. O. T. S. vessels came from other districts, absolutely devoid of supplies, these districts at the time not having an N. O. T. S. medical officer, and depending upon being outfitted in New York. To save time a standard N. O. T. S. medical and surgical outfit was devised in cooperation with the U. S. Naval Medical Supply Depot, Brooklyn, N. Y., and a number of these outfits were kept on hand all the time for emergency calls. In fact, a few standard outfits were distributed to N. O. T. S. dispensaries to still further obviate any delay.

The outfit, on the whole, followed in general the suggestions supplied by the bureau in the medicine box furnished the auxiliary service, etc. N. O. T. S. vessels, as a rule, required a more ample outfit on account of their unusual and oftentimes hazardous duty. The needs of N. O. T. S. vessels were carefully studied, and each pharmacist's mate was questioned closely regarding the difficulties he had experienced on his trips. Whenever it was found possible to supply a drug or surgical appliance that might prove of assistance, this item was included in the regular standard N. O. T. S. outfit, and thus in a short while this collection of medicines, dressings, and surgical appliances was as complete as limited space permitted it to be, and it is a noteworthy fact that after the standard outfit was finally made up in its present form this office had no further complaints from any vessel that the supplies furnished proved too little in variety or kind. *In no instance did any ship leave the port of New York without a standard outfit on board, although on several occasions but a few hours were allotted to do this.*

Upon the return of an N. O. T. S. vessel to New York the pharmacist's mate received instructions to make out an inventory of supplies on hand and submit it, together with a replenishment requisition. These requisitions were completed by either the supply depot or one of the N. O. T. S. dispensaries, depending upon the size of the requisitions and the amount of time given to fill them.

Among other things, it was found necessary to supply antityphoid and cowpox vaccines and antidiphtheritic and antitetanus sera.

The Bureau of Medicine and Surgery supplied the following books to assist pharmacist's mates in their work:

Clinical Studies for Nurses, the Treatment of Emergencies, Pocket Medical Cyclopedia, a small medical dictionary, and Treatment of Venereal Diseases, in addition to the Handy Book for the Hospital Corps, and the Manual of the Medical Department. These books were selected so that anyone skilled in nursing but without comprehensive medical knowledge could take care of any of the graver diseases in a most efficient manner, and they proved of great assistance. At the bureau's suggestion, also, an embalming outfit was placed aboard most of the N. O. T. S. vessels coming into New York, to-

gether with instructions for the use of the same prepared at this office. Up to date no information has been received as to the practical working of this outfit.

By special arrangement with the local public health service this office was permitted to issue bills of health to outgoing vessels.

It was found that frequently N. O. T. S. vessels took water aboard at a foreign port. Many times this water was not of the best quality, and small outbreaks of intestinal disturbance occurred among the crew. To neutralize this source of danger a water sterilization outfit was prepared which consisted of three large and six small tubes of calcium hypochlorite graduated in weight so that any amount of water from 100 to 2,000 gallons could be sterilized.

The type of hospital corpsman supplied by the Bureau of Medicine and Surgery to N. O. T. S. vessels was of the highest. As a rule, they were regular service men of long experience, medical students, or men who had pharmaceutical experience. These men proved to be dependable and equal in every way to the work expected of them. Many difficulties and vexing questions arose in the performance of their duty, and it became the work of this office to straighten out complexities and furnish guidance.

The medical aid's office at 45 Broadway soon became the headquarters for pharmacists' mates whenever they were in doubt as to the proper method to pursue, and after studying the difficulties most frequently presented instructions were drawn up from time to time and circulated to all N. O. T. S. vessels. These instructions covered many subjects from clerical procedures to methods of sanitation and are here summarized.

#### INSTRUCTIONS FOR PHARMACIST'S MATES ACTING INDEPENDENTLY ON N. O. T. S. VESSELS.

1. Upon arrival at New York report to medical aid, N. O. T. S., room 900, 45 Broadway, for any information or instruction desired. Telephone, Rector 9200.

2. When in the harbor of New York three dispensaries are available for N. O. T. S. vessels. Locate the one nearest your ship and go to this one for all medical assistance.

(a) A medical officer from the dispensary at Steven's Institute, Hoboken, N. J., will answer all emergency calls day or night. Telephone, Hoboken 2835.

(b) A medical officer from the dispensary at Bush Terminal will answer all calls day or night. Telephone, Sunset 7500, extension 134.

(c) A medical officer from the dispensary at Rosebank, Staten Island, will answer all calls day or night and will also attend to fumigation of all N. O. T. S. vessels. Telephone, Tompkinsville 2722, extension 4.

3. N. O. T. S. vessels will be supplied with a full set of medical department forms, but only the following should be made out:

Form F: Rough abstract of patients. (When a patient is admitted.)

Form F: Smooth abstracts of patients. (Monthly.)

Form K: Statistical report. Make this out in quadruplicate, so that medical aid, N. O. T. S., may retain a copy. (Monthly.)

Form H: Health record—(green) officers; loose sheets (gray) enlisted men. (When a patient is admitted.)

Form O: Request for standard forms. (When needed.)

Form G: Hospital ticket. (When a patient is sent to hospital.)

Form Q: Clinical chart. (For all serious cases.)

Form N: Death report. (Whenever a death occurs.)

Form 4: Requisition for supplies. (When supplies are needed.)

Morning report of sick. (Daily to commanding officer.)

Binnacle list. (Daily to officer of deck.)

Journal of Medical Department. (See par. 11.)

All forms when made out should be sent to the medical aid, N. O. T. S.

4. A complete medical and surgical outfit will be put aboard each vessel when commissioned or later. This outfit contains all the medical and surgical supplies which experience has demonstrated necessary for the vessels of the N. O. T. S. class. The pharmacists' mates on these ships may note that certain drugs are not on the list, but in such a case they will also see that a substitute is always provided.

When, after a trip, medical supplies become exhausted, be sure that a full allowance is made up before leaving port. For this purpose make out a list of supplies needed on Form 4 and submit the same to the medical aid, N. O. T. S. Do not go to any of the dispensaries or the supply depot at Brooklyn for supplies. The amounts of articles asked for should conform with the amounts allowed on the original requisition, a copy of which is on your ship, unless special conditions require otherwise.

14. Form K should be made out in quadruplicate. This is necessary in order that the medical aid may retain sufficient copies on file.

15. Bills of health must be procured from the medical aid before leaving for any foreign port. When clearing for a port in the United States bills of health are not necessary. If ships leave New York for another port of the United States to eventually make a foreign port, the bills of health should be procured from the last port in the United States.

16. When ships of the N. O. T. S. are coaling, it is rigidly required that the pharmacist's mate remain aboard ship and stand by for any accidents during the entire time.

17. *Purification of water.*—Whenever a vessel takes on water in a foreign port make all the inquiries possible among local board of health physicians, or, in their absence, among local private physicians, concerning the purity of the water supply and the prevalence of intestinal and epidemic diseases.

If any doubt exists in your mind, purify the water by the use of the small ampoules of calcium hypochlorite furnished you.

These ampoules contain 40 and 200 grains, enough to sterilize 100 and 500 gallons of water, respectively. Empty the contents of an ampoule into a mortar and add enough water to make a soft paste. Grind it thoroughly and add to water in tanks in sufficient quantity to sterilize the amount contained therein. For example, 800 gallons of water in a tank would require the addition of the contents of one large and three small ampoules.

18. *Typhoid prophylaxis.*—See that all the members of your crew are given antityphoid inoculations—one-half mil the first injection, 1 mil the next two injections. Be sure to enter the completion of the injections in the man's health record.

Attention of pharmacists' mates is called to the new antityphoid vaccine (lipovaccine) now being issued to N. O. T. S. vessels. The dose of this vaccine is 1 mil and only one injection is given. The three-dose vaccine, requiring 2½ mils in all, is no longer supplied.

With the new vaccine the skin must be carefully sterilized with tincture of iodine, after a scrubbing with alcohol and gauze. Warm vaccine slightly to make it flow easily.

One mil of the oily vaccine is drawn up with the syringe after the same has been boiled. It is best to adjust needle on syringe tightly and then draw 1 mil of the vaccine with the syringe right through the needle. The vaccine being oily, is a little harder to handle than the old vaccine. After injecting, press a gauze sponge on the puncture as you withdraw needle to keep the vaccine from flowing back out of the skin. The usual location, on the upper arm below shoulder, is the best.

Occasionally a small cold abscess will form at the site of the injection. It is best not to open these as they are sterile and do not cause trouble.

19. *Early diagnosis of tuberculosis.*—As a result of influenza a greatly increased incidence of tuberculosis may now be expected. Medical officers are directed to be vigilant to detect incipient disease.

The early diagnosis of tuberculosis among Navy personnel is of the greatest importance. The treatment and care of an incipient case is comparatively simple and inexpensive, but to allow a patient to progress past the stage of incipency is a disaster fraught with dire consequences to the subject, and a source of interminable expense and care to the Government.

Influenza, like measles and scarlet fever, predisposes to tuberculosis. If a convalescent patient does not rapidly regain his normal health and vigor, if he remains below normal weight, if he continues to have a cough or to be afflicted with frequent colds, or if he tires easily he should be considered as

potentially tuberculous. Such a patient should be held under the closest observation in order to make a diagnosis to confirm or exclude tuberculosis.

Most helpful among the measures to clear up a doubtful diagnosis in obscure cases is a temperature record taken every two hours from 2 p. m. to 8 p. m. daily for at least two weeks. It is important that the thermometer should be left in the patient's mouth at least five minutes, and that all the other customary precautions be carefully observed to insure correct readings. A daily rise above 37.6 C. or 99.6 F. should be regarded with suspicion. The effect of work or other exercise on the subject's temperature should be carefully observed. If fever is found coexistent with a rapid pulse, a lowered blood pressure, or dyspnea from slight exertion, the case should be considered extremely suspicious even in the absence of physical signs of the disease.

Sputum when obtainable should be frequently examined for the tubercle bacillus. If microscope facilities are not available at the station smears should be mailed to a laboratory. One negative examination is of no great significance. A patient's sputum should not be considered negative until after at least four examinations.

If, after careful study, the symptoms persisting, it is impracticable to confirm or exclude tuberculosis, the case should be transferred to a naval hospital with diagnosis undetermined for further study.

Every ship after it returned to port from a voyage was reinspected. In this way each ship received a complete sanitary inspection every two or three months. Whenever an adverse report was sent in by the medical aide the supervisor forwarded this report to the commanding officer of the ship for comment and action. This had a very salutary effect upon the officers of N. O. T. S. vessels. A ship reported unfavorably by one of the medical officers would, upon her return to port seven or eight weeks later, appear in excellent condition. The inspection also furnished another means of securing data on the work of pharmacists' mates acting independently on N. O. T. S. vessels. On the whole, the inspection system is considered the best single feature of the work done by this office.

It was pleasant to note the almost complete absence of friction between the medical inspection officers and commanding officers regarding action upon suggestions received during this inspection, even when in some cases the report was quite severe. In any case when a peculiarly poor condition was found to exist aboard a ship great care was taken that a second inspection was immediately made, so that no injustice should be done. Frequently the commanding officers of ships would come to the office of the medical aid, 45 Broadway, and express their satisfaction not only with the inspection but with the work of their pharmacist's mate. These visits provided an occasion to see to it that pharmacists' mates were given due consideration and their recommendations in sanitary matters acted upon.

Three, and sometimes four, medical officers were detailed for regular inspection duty. Also an arrangement was made with the naval medical officer on duty with the local quarantine officer whereby he was to report any unfavorable conditions he might happen to find on his boarding visits.

*Dispensaries.*—A glance at the map of New York reveals the rather dispersed locations of loading places for N. O. T. S. vessels. The first was at Bush Terminal Docks, Brooklyn, N. Y., another at the Hoboken docks, just above the Army transport piers, where most of the loading and repairing of N. O. T. S. vessels was done, and besides these two places quite an assembly of ships was constantly at anchor somewhere between the Statue of Liberty and Staten Island.

With the number of ships in port ranging from 41 in August to 67 in December, 1918, carrying an average crew of 100 officers and men,

a great many casualties and diseases occurred, both aboard ship and ashore. In order to take care of these it became necessary to establish three dispensaries where immediate medical assistance could be secured by N. O. T. S. pharmacists' mates. A dispensary was built on Pier 6, Bush Terminal, another near the Rosebank Quarantine Station, and the use of the Stevens Institute Naval Auxiliary Dispensary was secured, making a third dispensary available. The latter took care of all ships docking at Hoboken.

The Rosebank Dispensary took care of all ships lying off Liberty and Tompkinsville, and the Bush Terminal Dispensary provided medical assistance for all ships loading there.

These dispensaries were placed under the charge of a medical officer, who had three hospital corpsmen to assist him. A hospital corpsman was on duty day and night, and the medical officer in charge of the dispensary could be called by telephone at any hour.

These dispensaries were provided with a small emergency operating room, a small dispensary where the ordinary microscopical work could be done, and a few beds where emergency cases could be put to rest.

Another good feature about these dispensaries was that they could be used as evacuation points for patients suddenly taken ill on N. O. T. S. vessels who had to be transferred ashore.

These cases could be handled immediately and taken off the ship to one of the dispensaries, where a doctor gave them such attention as was needed. The hospital was notified and ambulance requested. Previously some difficulty was experienced on account of patients seriously ill being allowed to remain exposed, sometimes in inclement weather, on a busy pier until the arrival of the hospital ambulance, which occasionally meant several hours. The medical office at the Rosebank Dispensary was equipped to perform such fumigations as were necessary. No ships were fumigated excepting for the purpose of getting rid of rats. Altogether about one-half dozen fumigations were made, these being done by the cyanide process and were very successful. Vermin were combated by the use of sodium fluoride and a powder blower. This for roaches, ants, etc. Bedbugs, fleas, etc., were destroyed by means of a spray composed of kerosene and turpentine. The apparatus, by arrangement with the supply officer, was furnished on requisition made by each ship.

The question of antipneumonia vaccination was taken up with the Rockefeller Institute, and its advisability was also discussed over the telephone with the Bureau of Medicine and Surgery. On the advice received vaccinations were begun in December and are now being carried on as rapidly as incoming ships will permit. These vaccinations were entirely voluntary, and a close record was kept so that some deductions may be drawn from the result. The vaccine used was the lipo-vaccine furnished by the Army Medical School Laboratory.

Instructions covering the moral, educational, and medical aspects of the venereal problem were given to ships in port by an arrangement with the Commission on Training Camp Activities. Much good work was accomplished. Literature and charts were given to each ship, lectures were delivered, and special instructions given to pharmacists' mates.



*Office organization.*—At first the medical department of the N. O. T. S. required the use of only one office. After the work increased more room was necessary until at the present time four offices are occupied. No small part of the work has been the attention given to the officers and enlisted men attached to 45 Broadway—in all 1,144. Further commissioned and enlisted personnel is on duty at N. O. T. S. bases, and these receive medical attention from the N. O. T. S. medical officers on duty at the dispensaries.

A record board was kept in the office showing the name of every ship in port and her probable date of sailing. A system of buttons was arranged and spaces set off under the headings: "Sailing date," "Inspected," "Fumigated," "Medical officer," "Medical outfit," "Repairs fin.," "Bills of health," "Inspection Off." Each space was closed with a red button. As new arrivals in port were assigned daily to inspection officers, the initials of the inspection officer were put opposite the name of the ship. At the completion of the inspection the red button was removed and a green button put in. When the medical outfit was placed aboard the red button was removed from that space and a green button put in. In this manner when all the wants of a ship had been attended to, a row of green buttons occupied all the spaces opposite the name.

With a large number of ships in port it can readily be seen that some such system of checkage had to be provided, otherwise many a ship would have left port without proper equipment.

A final word should be said regarding the duties the N. O. T. S. vessels have performed. They have been the mighty arm that reached across the ocean to feed and supply the troops that went across. Their range of cruising varied from Archangel to farthest South America. Often a ship acted independently for months, exposed to all the dangers of submarine attack. Their crews were exposed to all conditions of climate, weather, and war.

Some of the most striking combats of the war were fought by N. O. T. S. ships, the most important of which were the U. S. S. *Ticonderoga's* battle with a German submarine, in which nearly all of the officers and crew of the U. S. S. *Ticonderoga* were wounded and the ship had to be abandoned; the fight the U. S. S. *F. H. Buck* had with a German submarine, which resulted in the sinking of the submarine after an hour's fight; the engagement of the U. S. S. *George C. Henry* with a German submarine, during which 17 of the *George C. Henry's* crew were wounded, and the subsequent ramming a few days later of the U. S. S. *Herman Frasch* by the U. S. S. *George C. Henry*.

The U. S. S. *Westward Ho* was torpedoed and abandoned; the U. S. S. *Westbridge* was torpedoed and abandoned, suffering three dead; the U. S. S. *Lake Forest* had a gun duel with a submarine, and so did the U. S. S. *Dochra*, the U. S. S. *Kanawha*, and the U. S. S. *West Haven*.

The U. S. S. *Buena Ventura* was torpedoed during a howling gale. It took two torpedoes to sink her. Three officers and 22 men were lost when the ship was abandoned.

These are not by any means all the encounters that took place. But this report does not concern itself with the review of the military actions of N. O. T. S. vessels. The engagements above mentioned

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The Rosebank Dispensary at New York was maintained for the personnel of the Navy and a satisfactory service through the administration and equipment having been secured. The demands made on these institutions were well set forth in the reports of individual medical assistance for the war.

These dispensaries were well set forth in the reports of individual medical assistance for the war. In the main, existing regulations were followed, and only minor modifications were required.

The signing of the armistice lead to no immediate change in the requirements for hospital accommodations, but during the latter months of the fiscal year there has been a conservative, economical reduction so that on June 30, 1919, there remained a total of 14,891 available beds under Navy control in hospitals on this continent.

Hospitals abroad established for the war were promptly put out of commission one by one as their services could be dispensed with and advantageous return or other disposition made of all Government property. Only one of the original two hospitals at Brest remains, the establishment being necessary in connection with Navy vessels of different types still serving in foreign waters or engaged in returning Army personnel. The hospitals at Leith, Queenstown, Strathpeffer, London, Gibraltar, Genoa, Lorient, Cardiff, Pauillac, Plymouth, and Corfu are no longer in existence.

During active hostilities surgical units from our hospitals in France and Great Britain were detailed for service at the front, and their assistance was cordially received by overworked medical contingents of the Army. Our units consisted of two or three operating surgeons, accompanied by female nurses and hospital corpsmen.

The system of physical records now in use by the medical department serve every purpose when on file in the bureau, but the large increase in the number of patients treated at our various hospitals during the war and the constant inquiries that were being received concerning them from many sources made it necessary to preserve at each institution more elaborate data than had been required previously. A fuller system of clinical records was therefore developed at the several hospitals, and from these a uniform system for general use will shortly be formulated and made official and part of the permanent local records. These records will be chiefly of clinical and professional value but also useful for reference after a case has been disposed of and the routine papers forwarded elsewhere.

#### HOSPITALS IN EUROPE.

*Base 13, Azores.*—The hospital at base 13 consists of three small wooden buildings and several tents. The dentist's office, operating room, and sterilizing room are in one of the buildings. The sterilizing room is about 8 by 6 feet. The operating room is 12 by 12 feet and the dental office 12 by 12 feet. The entrance to the operating

room for patients is through the dental office. Another small building is used for a ward for surgical cases. It will hold about 15 beds comfortably. The floor is on a level with the outside ground and the room is very damp in rainy weather. It is ventilated by means of doors and windows. The administration building is of the same dimensions as the other two and has an office for the clerical staff and medical officers, a dispensary and laboratory. These buildings are heated by electricity but they are not heated.

The above-mentioned buildings were occupied August 19, 1918. At the appearance of the epidemic in September the hospital had 12 patients. In the latter month, influenza made its appearance and it was found necessary to find other quarters for the sick as no tents could be borrowed.

On October 19 the medical department secured for a hospital a large mansion in the heart of the town, well ventilated and dry. Electric lights were installed and toilets constructed and in spite of the lack of baths the building answered its purpose very well. Fortunately the building contained a good-sized kitchen and the cooking for a large number of patients was no problem. At the height of the epidemic there were over 100 on the sick list.

The personnel of the hospital included the following: Three medical officers, 1 dental surgeon, 18 hospital corpsmen, 4 ship's cooks, 2 seamen for helpers, 1 yeoman.

The first cases of influenza were brought to this port by the Japanese steamer *Shensi Maru* in the month of September. She had been adrift at sea; had had several deaths and there was no doctor on board. The commanding officer thought the deaths were due to beriberi. A study of the cases and autopsy findings, however, made clear the nature of the disease. The conditions on board were so bad that the transfer of both the sick and the well to the contagious disease hospital was recommended in order that the ship might be cleaned and disinfected. In the same month an American ship arrived almost disabled by an epidemic of influenza on board. In this instance the sick were isolated on the main deck under awnings and the living spaces disinfected.

In October every ship arriving in this port transferred cases to the hospital and soon the accommodations were overtaxed. On October 19 the building above mentioned was secured for temporary use as a hospital and although it had some bad features it answered the purpose very well. It had many very large rooms and could easily accommodate 500 patients. There was no way of heating the building, but as the wards were all on the second floor the patients did not suffer as much from the cold and damp as they would had they been quartered in tents.

*United States Navy Base Hospital No. 1, Brest, France.*—The personnel sailed for France for duty with the United States Marine Corps on the U. S. S. *Henderson* in September, 1917, and landed in France October 5, 1917, at St. Nazaire. It was the first Navy base hospital fully equipped for work in France, and, in fact, it was one of the earliest hospitals connected with the expeditionary forces.

The equipment was for a 500-bed hospital, but the personnel was large enough for a 1,000-bed hospital. The commanding officer, executive, and pharmacist and four chief pharmacist's mates were of the regular naval establishment.

are given merely so that the pharmacists' mates who served aboard N. O. T. S. vessels may be given just credit for the hazardous duty which they so completely discharged.

#### NAVAL HOSPITALS.

Our regularly established hospitals maintained for the personnel of the Navy have rendered efficient and satisfactory service throughout the past year, the details of administration and equipment having been accommodated to the increased demands made on these institutions. The expansion in personnel and material which has taken place in the past two years is well set forth in the reports of individual hospitals here following. In the main, existing regulations were easily adapted to the new situations and only minor modifications were required.

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Although the hospital was organized for duty with the United States Marines, it was naturally assigned to duty with the American Expeditionary Forces, and the commanding officer reported directly to the commanding general of the American Expeditionary Forces.

For some weeks following its arrival in France there was some doubt as to where the unit would be sent, and an effort was made by all concerned to have the hospital accompany the marine detachment and serve with them in the zone of advance. However, certain urgent conditions arose at that period in Brest, France, and after spending a few weeks of inactivity in Angers, the unit with its equipment was ordered to Brest.

On November 19, 1917, the Army authorities took over the "Petit Lycée" in Brest, this building having been obtained from the French authorities by the Army, and this Navy base hospital unit immediately was assigned to the building and began cleaning it and preparing it for occupation. At this time it was still in use as a French hospital and contained a few French patients. The building was dirty and insanitary in every respect, with inadequate water supply and very primitive toilet facilities. The preparation of the building to conform to our requirements as a hospital was begun and general innovations were instituted by our own personnel. The installation of additional plumbing, toilet facilities, electric wiring and lighting, and various carpenter jobs, etc., were immediately begun.

One wooden barracks and later tents were erected which gave the hospital a capacity of about 500 beds, although during emergencies as many as 750 were accommodated by using verandas, balconies, and hallways. The heating of the building was done by 46 small stoves.

Members of the hospital corps are fairly well accommodated in the attic. A few of the nurses live in the hospital building while the remainder have quarters in a convent close by. The location of the hospital is ideal, being in the center of the city. It is convenient to the water front and hence the most serious cases brought ashore have been delivered here, thus escaping the discomfort of prolonged transportation to other hospitals.

There is a large mess hall in the building which is used by the patients and hospital corpsmen. The galley is close by and is adequate. An excellent bacteriological and pathological laboratory has been equipped and it occupies two rooms of the building. The operating and X-ray rooms are very well equipped. The operating room is well lighted and adjoins the X-ray room. There is a special diet kitchen, under the direct management of one of the nurses with a French civilian as an assistant. The hospital employs 30 French civilians, maids, scrub women, etc. The wards as a whole are well lighted and receive the sun whenever it sees fit to shine. One of the wards is in the chapel and accommodates about 80 beds, the other wards containing 40 beds or less. There are a few small rooms which are used as sick officers' rooms. A small ward of eight beds is available for sick nurses. This hospital serves as a base, camp, convalescent and evacuation hospital. A number of French civilians injured by automobiles and also numerous welfare workers both male and female have been admitted. At times as many as 250 to 350 patients from Army hospital trains are received on short notice. In the past

evacuation was directly to ships but at present all evacuation is through a central evacuation hospital, namely, Kerhuon. The transfer is carried on most satisfactorily by the Pool Ambulance Corps.

During the past year, various operating teams have been sent from here to the front doing duty with the Army. These teams have consisted generally of a surgeon and an assistant, 2 nurses and 2 hospital corpsmen. They did excellent work. At times nurses and hospital corpsmen have been detailed to other hospitals in France.

Every individual with very few exceptions has put the best he had into the work. Officers, nurses and enlisted men applied themselves with untiring spirit, to the various tasks as they arose and deserve high praise. The work at this hospital has been most peculiar in that the staff had to adapt itself to Army methods and Army ways which sometimes ran counter to the opinions of the members of the Navy personnel. However relations between the two services have been most amicable and everyone has striven for the best result.

*United States Navy Base Hospital No. 5, Brest, France.*—The original unit for this hospital was organized at Philadelphia, Pa., under Commander R. G. LeConte, Medical Corps, United States Naval Reserve Force, and Commander J. E. Talley, Medical Corps, United States Naval Reserve Force. Captain H. C. Curl, Medical Corps, United States Navy, was placed in command when the unit was enrolled in the Navy, having as executive Commander H. A. Garrison, Medical Corps, United States Navy. Hospital No. 5 was the first to begin operations abroad (December, 1917) and is still functioning. Located at the port where the bulk of our troops disembarked and from which thousands of wounded were sent home it has been the principal center of Navy hospital activities in Europe. The commanding officer acted as aide to the Patrol Commander in French waters and was in charge of the United States Naval Medical Supply Depot which in April, 1918, began the distribution of medical and surgical stores to our various stations and units in France and to vessels in the Mediterranean and Adriatic.

The work of establishing the hospital was rendered peculiarly difficult by the disturbed local conditions in Brest at the time of the unit's arrival, but energy, tact, and patience surmounted all difficulties. The building assigned for hospital use, several centuries old, originally a convent, was lacking in plumbing and sanitary fixtures and demanded much alteration and repair, but the necessary modifications and improvements were carried out with praiseworthy dispatch and within a few weeks of landing the unit had available a minimum accommodation of 500 beds and throughout the period of war service averaged 400 patients, while during the influenza epidemic the number reached 800.

The hospital had all the facilities necessary for giving adequate medical and surgical relief to all comers. It received patients from various naval stations in France, from the marine regiments, from United States Navy vessels of all classes operating in the Bay of Biscay, the North Atlantic and the English Channel and more than once ministered to survivors of German submarine attacks on merchant shipping, as when 320 survivors were received from the torpedoed *Covington* and 82 survivors from the U. S. S. *Westover*, the latter group of men having been in the water four days when rescued. There were frequent occasions when hospital service was

rendered to the train loads of sick and wounded Army troops arriving in Brest for embarkation for the United States.

Operating units were on several occasions despatched to the front and did yeoman service at Army hospitals in advanced areas, notably the Army division hospital at Pierrefonds in June and July. On July 20 one of the Navy surgeons operated continuously for 18 hours, inspired to work to the limit of physical endurance by the sight of 200 stretcher patients awaiting their turn on the operating table.

Commander LeConte, Medical Corps, United States Naval Reserve Force, served for a time in a liaison capacity with the French forces, travelled extensively on visits to French and Belgian hospitals and camps and sent in many reports of great professional value to the bureau.

During the period, November, 1917, to November, 1918, 681 surgical cases were treated with a mortality of 2.05 per cent. In the genito-urinary department 5,509 salvarsan injections were made and 300 minor operations performed. The patients treated in this department were 1,232.

*Genoa, Italy.*—The former Red Cross Hospital at 19 Via Pannigalli, Genoa was taken over September 17 by the United States Navy. The building was requisitioned by the military authorities and a yearly rental of 1,050 lire established. The hospital was equipped by the Red Cross and all this equipment was turned over to the Navy without cost when the Navy acquired the hospital. This has all been accounted for as property obtained without cost. Additional medical and surgical supplies were obtained from our naval medical supply depot in Europe and the hospital was thus fully equipped from every point of view.

The history of the establishment of a U. S. Navy hospital at Genoa, Italy, is as follows: With the increased number of United States merchant ships carrying armed guard crews arriving in Genoa and the great prevalence of venereal diseases at that port, a medical officer was detailed by the force commander for duty in connection with the prevention of these diseases, to look after the health of the naval personnel there, to investigate conditions, and to make provisions for the care of a probable increase of naval personnel. Lieut. J. E. Clarke, Medical Corps, United States Navy, Reserve Force, reported for this duty June 26 and immediately got in touch with the American Red Cross, from whom the naval attaché had previously made arrangements to obtain such assistance as was required for the health and care of the naval personnel.

An agreement had been made by the naval attaché with the American Red Cross for the latter to procure a suitable building and equip it as a hospital for approximately 50 patients. This hospital was to care for the Navy sick and injured in Genoa who were to be treated by naval medical officers, and it was further agreed that should the patients increase to such a number as to justify their doing so the United States Navy would take over the hospital for its own use. With this object in view the American Red Cross secured the Villa Oberto at 19 Pannigalli, a residence containing 20 rooms situated at d'Albaro and equipped it as a general hospital with a maximum capacity of 50 beds. The building was admirably suited for a small hospital and with few alterations and the installation of some addi-



tional plumbing was made to meet all requirements. Its location was an ideal one in all respects, save for its distance from the port.

Relations with the Red Cross, United States Army ambulance unit, and British army hospital were most cordial, and these organizations were of great help to the hospital in many ways. The British army hospital gladly did the required Wassermann tests and X-ray examinations without cost. Without this assistance the efficiency of the hospital would have been greatly curtailed.

During the three and one-half months the hospital was in commission there were 171 admissions, with a total of 2,987 sick days. One death occurred on October 5. The patient had been taken over with the hospital. This was a hopeless case of brain tumor. Autopsy confirmed the diagnosis of glioma. Sixteen operations were performed, eight of which were major and eight minor.

*Gibraltar.*—This hospital was placed in commission November 1, 1918. From March 15, 1918, to date of commissioning the institution had operated as a naval dispensary. This report covers the entire period from March 15, 1918, to January 4, 1919, when the hospital was placed out of commission by order of the commander, patrol squadron, based on Gibraltar.

The United States naval base at Gibraltar was established in the summer of 1917 as an operating base for vessels doing escort duty in the Mediterranean and ocean escort duty to England. There were some 35 ships, including scout cruisers, gunboats, coast guard vessels, yachts, and destroyers. Later, 18 submarine chasers were based here.

Property known as Glen Rocky, located at the south end of the Rock, was leased by the month from Mr. J. Lucas Imossi, of Gibraltar. This property consists of some 2½ acres of uneven ground with a main building of 10 rooms and several outhouses. The house accommodated about 36 patients. The hospital corpsmen were quartered in an outbuilding. The total bed capacity of the hospital was increased to 70 by the use of hospital tents. It was found necessary immediately to make certain additions and alterations, namely, extra bathrooms, water closets, and plumbing, enlarging cess pit, construction of a temporary roof over the patio used as a mess hall and garage. It was also necessary to rewire the house for lights and install new lamps. This work, with various smaller items, cost about \$1,300. It was performed by local contractors, and owing to the class of labor necessarily employed in Gibraltar, it was not only poorly done, but at an exorbitant price.

It was later arranged to have such work as was necessary from time to time done by the British Royal Engineers, said work to be authorized by the commander, patrol squadrons, based on Gibraltar, payment to be effected by an adjustment between the Navy Department and the British War Office.

This hospital proved entirely satisfactory, not only for the treatment of naval sick, but as a distributing center for ships requiring medical supplies, and as a place for convening boards of various kinds. There were 743 admissions, 14,876 sick days, and 23 deaths. Prior to the establishment of the dispensary in March, 1918, all cases requiring hospital treatment were sent to the Royal Naval Hospital, Gibraltar. Since that time it was necessary to send only major surgical cases. From the establishment of the base until March 15,

1918, when the dispensary was commissioned, there were 347 admissions and 5,729 sick days. Since that date and until January 1, 1919, there were 73 admissions and 1,741 sick days.

*United States Navy Base Hospital No. 3, Leith, Scotland.*—The unit was assembled at Philadelphia, Pa., December 10, 1917, and there completed its equipment. It reached Edinburgh July 29, and arrived at Leith, Scotland, August 17, 1918, where it occupied the buildings of the Leith Parish Poorhouse at Seafield, as subtenant of the British Army.

At the time of taking over the property there were in the wards 50 patients of the British Army. From that date to December 3, 1918, when demobilization was begun, the hospital handled cases from the land and sea forces of both America and Great Britain, besides a few emergency cases received while demobilization was actually in progress. The buildings were clear of patients December 31, 1918, and the property was turned over to the British Army on January 15, 1919.

Needed improvements to the hospital property were made at a cost of about \$40,000. They included installation of sanitary fittings, heating and lighting fixtures, and repair of roads. The erection of hutments, increasing the hospital capacity to 1,000 beds, was complete at the time the armistice was signed. The citizens of Leith donated \$7,000 for a recreation hut for sick officers, the American Red Cross \$10,000 for a rest and recreation hut for female nurses. These buildings were not ready for occupancy at the time of demobilization. The American Red Cross recreation hut to cost \$20,000 was never completed.

Besides the main poorhouse buildings the hospital utilized a hotel building as nurses' quarters, three houses in Leith for nurses and hospital corpsmen, and Dunmore House, a private residence loaned and equipped by the Scottish Red Cross as a convalescent hospital. The latter was not occupied until six weeks prior to demobilization.

The largest number of beds in use for patients at any one time was 647. The total number of patients treated was 1,978, of whom 526 underwent surgical operation, with one death. One hundred and seventy-four were major operations. The tests and examinations made in the laboratory totaled 795.

Rather lengthy pourparlers with local authorities threatened to delay the establishment of the hospital in the locality agreed on in conference with the British authorities until it was suggested by a clerk in the office of the Leith Parish Council that said council accept the United States Naval Hospital, Leith, as subtenants of the British Army without fresh agreements, an arrangement which permitted all adjustments to be made direct between the two military organizations. The War Office thus continued responsible for payment of the periodic claims of the poorhouse, counting on subsequent recoveries of the amounts involved from the American naval authorities.

Arrangements were promptly perfected with the Medical Transport Office for Scotland for transportation of patients to Seafield.

A minimum of 250 beds were, by agreement, reserved for the needs of patients of the British Army who while at the United States Navy Base Hospital No. 3 were considered as cared for by an affiliated service of No. 2 Scottish General Hospital, Craigleith.





BUILDING 33 USED BY U. S. NAVY BASE HOSPITAL NO. 3, LEITH, SCOTLAND. SURGICAL BLOCK.

Our forces in the North Sea and elsewhere were notified that transfers to Leith and other United States Navy hospitals in Scotland would be in canvas carrying-cots in conformity with the British Navy system.

#### Summary.

Normal capacity, U. S. Navy Base Hospital, No. 3.....	840
Emergency capacity.....	1,000
1978 cases were treated representing about 1,950 patients and 28 changes of diagnosis.	

#### DAILY AVERAGE.

Aug. 17 to Sept. 1.....	87
Sept. 1 to Sept. 30.....	209
Oct. 1 to Oct. 31.....	395
Nov. 1 to Nov. 30.....	586
Dec. 1 to Dec. 31.....	198
Daily average of patients from Aug. 17 to Dec. 31, 1918.....	295

Sick officers and men of the Royal Army and Royal Navy were treated and subsisted in addition to officers and men of United States Navy vessels operating in the North Sea or touching at Leith, Glasgow or Kircaldy, Scotland. There was no action taken to recover charges for subsistence from members of allied services.

The United States Navy Base Hospital No. 3 had equipped and standing by for service at the front three operating teams. Operating team No. 1, consisting of three medical officers, two female nurses, and two hospital corpsmen, left Leith September 18 for the American Army Base Hospital Unit No. 15. There the team was ordered to report to the Red Cross evacuation hospital No. 114, at Fleury-sur-Aire. The team reached Fleury during the open barrage of the drive and was put to work immediately. After four days an orderly was supplied in addition and the team divided into two. They worked continuously until October 30, when they were relieved by operating team No. 2 from Leith. Lieut. Commander R. Smith, Medical Corps, United States Naval Reserve Force, in charge of the team and the other members composing it were most highly commended by Lieut. Col. J. C. McCoy, Medical Corps, United States Army, of the Evacuation Hospital No. 114, for their skill and untiring devotion.

The second operating team from Leith was under Lieut. W. W. Richardson, Medical Corps, United States Naval Reserve Force, and included, besides himself, two medical officers, two nurses, and two members of the hospital corps. This unit, after doing excellent work until after the signing of the armistice, returned to Leith on November 30, 1918.

Some idea of the activity of the service at the front at the American Red Cross Hospital No. 114 in which these teams participated may be obtained from the fact that between September 25 and October 16 the admissions numbered 15,505, and the daily average 738, and the number of operations 165. Operating units from Leith were dispatched in accordance with a letter from Maj. Gen. M. W. Ireland, Medical Corps, United States Army, chief surgeon American Expeditionary Forces, expressing his cordial acceptance of the assistance proffered by Capt. C. M. De Valin, Medical Corps, United States Navy.

*London, England.*—This hospital, originally a private dwelling, was of great service not only for the treatment of the sick from United States Naval Headquarters, London, but of those from various United States naval air stations and from stations of the northern bombing group in France and England. A large number of the admissions were from liberty parties coming ashore from the battle-ship force and various stations throughout the British Isles. Before the establishment of the United States Naval Hospital, London, our sick were sent to various British hospitals. Men coming to London on leave were very generally affected by the climate and taken sick. Besides caring for the sick the hospital has done much general dispensary work.

The building was lighted by electricity, and besides the central system heating was done by open fires in every room. The wards were a surgical with 26 beds, a medical with 19 beds, an isolation ward with 14 beds. There were recreation rooms for enlisted men and administrative offices on the first floor. The second floor contained rooms for sick officers (15 beds), operating rooms, the offices of commander and supply officer, and a bedroom for the officer of the day. The third floor was assigned to the female nurses. A laboratory and dispensary were established in the basement. It was found more convenient and economical, however, to have Wassermann tests carried out at the nearby Queen Alexandra's Military Hospital where the necessary X-ray work was also done.

On January 29, 1919, all members of the Navy nurse corps (female) were transferred to France. From then until going out of commission on April 30 the work was carried on by hospital corpsmen, and except for the absence of the "feminine touch" there was no evidence that the hospital was not staffed by female nurses. It is impossible to speak too highly of the work performed by these men and of their esprit de corps.

From the commissioning of the hospital September 10, 1918, to April 30, 1919, inclusive, the total cost of maintenance has been \$29,742.22. The total number of subsistence days was 17,853. The average cost of maintenance per diem was \$1.649, and the average cost of subsistence per diem was \$0.909. Considering the high cost of everything in Europe, especially in London during this period, it is clear that the hospital was most economically conducted.

The magnificent residence first assigned by the owner, Miss Guest, for use of the American Red Cross, was turned over to the Navy on September 10, 1918. The Red Cross had made numerous changes in fixtures and plumbing and so kindly volunteered to defray half the cost of restoring the building to its original condition. The total cost to the Navy of these restorations and renovations was \$1,025.50, of which \$870.90 was for plumbing. Before relinquishing it the place was thoroughly fumigated and cleaned from top to bottom, and the owner has expressed herself satisfied in every way with the condition of the property when returned to her.

*United States Navy Base Hospital No. 2, Strathpeffer, Scotland.*—The staff of this hospital was organized at Stanford University with Dr. Stanley Stillman as director of the unit and Dr. A. W. Hewlett as his assistant. With other physicians and with nurses and male personnel, the members of the unit were enrolled in the Red Cross early in 1917 and subsequently enrolled in the Navy during July and

August. After organization and training in Philadelphia, Pa., the unit sailed for Liverpool January 20, 1918, Captain E. S. Bogert, Medical Corps, United States Navy, being placed in command with Commander C. G. Smith, Medical Corps, United States Navy, as executive. Though originally intended to provide service for the personnel of the United States Navy, the commingling of allied vessels in combined military operations made it necessary that the needs of both American and British ships be supplied. The location selected for the hospital was therefore determined after consultation with the medical department of the British Admiralty and strategic needs pointed to the vicinity of Moray Firth. Strathpeffer was selected as being in direct railway communication with the ports where ships operating in the North Sea could most conveniently land sick and wounded. A number of buildings commandeered by the British Government under the defense of the realm act were carefully considered and finally those at Strathpeffer were chosen as being situated in a well-watered valley where the climate was somewhat less severe than that generally prevalent and as having ample potable water and being readily convertible to the purpose in hand.

The four large buildings, originally hotels or hydrotherapeutic establishments, accommodated the needed surgical and medical wards, operating room, laboratory, X-ray room, the nursing force, commissary department and the artificer service made necessary by their remoteness from a large city. The adjacent grounds and those placed at the disposal of the hospital by the Countess of Cromarty afforded ample opportunity for out-of-door recreation at tennis, croquet, baseball, and football, while in a near-by building rented by the Y. M. C. A., educational, religious, and recreational undertakings were carried on with vigor by the Y. M. C. A. representative and local clergymen.

Professional service to patients was conducted by surgical, medical, orthopedic, hydropathic, and neurological divisions, each in charge of an expert in his specialty.

During the calendar year 1918, the total admissions were 2,182. Of these 777 were men of the United States Navy, 1,002 men of the British Navy and 402 men of the British Army with one civilian emergency case. Of this total 1,288 patients came by British Army or Navy ambulance trains. The total number of operations undertaken was 946.

*United States Navy Base Hospital No. 4, Queenstown, Ireland.*—This hospital consisted entirely of portable buildings shipped from America. The work of unloading them began May 24 and the hospital was open and ready to receive patients on October 11. The buildings were set up without sacrificing a single tree on an old estate called White Point.

The hutments were of the portable type and were shipped in 50 units, each of which made a complete building 20 by 32 feet. Floors, walls, doors, and windows were made up of panels. The floors and walls were of double thickness with air space and building paper between. The buildings were light but substantial and withstood many a heavy storm. The main wards, general mess room and hospital corps barracks were 128 by 20 feet, or made up of four barrack units. One ward could contain 40 beds without crowding and an additional bed in a "quiet room." At one end of the ward were two water-

closets, two shower baths, and a urinal. The floors under the showers had a concrete curbing and a flooring of an impervious substance like cement. The hospital tailor cut curtains out of rubber sheeting and they were hung on rods made of gas piping. The walls of the quiet room were of double thickness lined with tar paper, the intervening space being filled with sawdust. A diet kitchen was provided. The buildings were heated by steam. Floors were covered with linoleum to prevent entrance of cold air through crevices left by the shrinking of the floor panels. At the sides, however, the floors were not so covered and the air coming in and heated by the radiators promoted ventilation. The walls were finished in distemper, green for interiors, white for roofs and beams. Roof ventilators were provided. Lighting was by electricity.

The operating pavilion consisted of two units, each having its operating room, etherizing room, and sterilizing room. The floors were covered with a preparation like cement. A cluster of five 50-candle power lamps under a reflector furnished the illumination.

The hospital was provided with sick officers' ward, X-ray room and laboratory, offices for special work—eye, ear, nose, and throat—storerooms, dispensary, linen room, mess hall, etc. The hospital corpsmen, cooks, mess attendants, carpenters, plumbers, electricians, chauffeurs, and firemen made up a personnel of 125.

Difficulty was experienced in procuring an adequate water supply, as that available from the city was limited in amount and of doubtful quality. A boring of 146 feet and the use of dynamite failed to strike water, so permission was obtained to tap the line running to the neighboring dockyard. Naturally water obtained in this way had to be used with great economy. A small reserve supply was held in two tanks of 2,300 and 10,000 gallons, respectively, placed one above the other on a brick pier 22 feet high, constructed for the purpose. A system of salt-water distribution was also installed for supplying toilets, urinals, etc., utilizing two Worthington pumps. A third pump was installed to provide additional force in case of fire.

The female nurses attached to the hospital numbered 30. Mrs. C. M. Hathaway, wife of the American consul, and Mrs. P. C. Macfarlane planned the refurnishing and decorating of an old residence in the grounds to be used as a nurses' home. It was charmingly renovated and prepared for habitation by these ladies and accommodated 18 nurses, the rest living in a hutment near at hand.

Other buildings were the chapel, Red Cross room, a brig (which never had to be used as a place for confinement), a morgue, and various storerooms. On the hospital grounds the American Y. M. C. A. erected a building containing barber shop, reading and pool rooms, canteen, a stage, and other sources of comfort and recreation.

The rapid erection of the hospital was due in large measure to the zeal and initiative of the enlisted men of the unit who did in a day what local laborers spent a week upon.

A radical departure from the usual administration of a naval hospital related to inspections. This method has been previously adopted, successfully, at Puget Sound Naval Hospital and at three small field hospitals with the marines. Instead of having one day set apart for the commanding officer's inspection, which means that



all work is temporarily stopped for at least one day, it was assumed that the hospital should always be ready for inspection. The commanding officer held daily inspections of all units and grounds, making due allowance for work that was going on. If it was found that any place was neglected, steps were taken immediately to correct it. These inspections were made at varying times of the day and it could be readily determined if there was failure to keep the buildings in the best sanitary conditions at all times. It also facilitated keeping in close touch with the progress of patients.

The personnel of the hospital was furnished by the Providence Naval Red Cross Unit, organized by Lieut. Commander G. A. Matteson, Medical Corps, United States Naval Reserve Force, of that city. While the hospital was in process of construction, the personnel was being trained at the United States Naval Hospital, Newport, R. I. The male personnel, exclusive of doctors, was sent for on July 1 and arrived August 5. The nurses and doctors were sent for July 26 and arrived October 9. Within a few days the hospital was filled with patients owing to the influenza epidemic, and for several weeks the entire staff was kept busy. Their professional ability left nothing to be desired, and in addition they showed an esprit de corps which was most gratifying.

Other hospital accommodations were available at our various stations in Europe under the designation "dispensaries" and are all described elsewhere in this report.

#### HOSPITALS ON HOME AND FOREIGN STATIONS.

*Canacao, P. I.*—The condition of the public buildings is very good. The deterioration of all wooden buildings and the need of repair is constant. Since the receipt of the department's order limiting repairs and stopping new construction only absolutely necessary repairs have been done.

The contagious building was completed and first occupied in July. It is located on the new reservation about 150 feet from the incinerator building and consists of one large room and bath room and toilet. It is so constructed that it can be entirely opened on all sides. The drainage from the building is into the Imoff tank. The building has been used several times for housing quarantine drafts from the transports. A new concrete cold-storage room built by hospital labor has given much satisfaction.

The work of the hospital corps has been very satisfactory. The class of men brought in by the war is high and they have shown much interest in their work and taken advantage of their opportunities for advancement. Unfortunately, practically all of the men who enlisted for the war have applied for release.

#### SUMMARY OF ADMISSIONS AND SICK DAYS.

##### Diseases:

Admitted.....	349
Readmitted.....	809
Total.....	1,158
Sick days.....	19,760

## Injuries:

Admitted.....	17
Readmitted.....	45
Total.....	62
Sick days.....	1,521

Twenty cases of pulmonary tuberculosis were surveyed and transferred to the United States Naval Hospital, Mare Island, Cal., and 7 Filipino patients were discharged here. Of the 20 cases, 6 were marines and 14 enlisted men of the Navy. Three cases were in the service less than 3 months; five less than 6 months and nine less than 12 months. Bacilli were found in 13 cases and in the remaining 14 the diagnosis was based on the clinical history and the X-ray findings.

In addition to the above number of cases 15 cases of chronic bronchitis and 2 of pleurisy were surveyed and undoubtedly the majority of these were tubercular in origin. About two-thirds of all these cases had been in the service less than one year. Their histories in many cases show some form of chronic lung affection prior to enlistment. Tubercular cases do very badly in this climate and the attention of the bureau is called to the advisability of more careful physical examination of men transferred to this station in order to weed out all who show any tendency to tubercular infection.

*Cape May, N. J.*—Shortly after the declaration of war with Germany a naval base was created at Cape May, N. J. It was at first thought that the sick of the several units comprising this base could be cared for at their own dispensaries or transferred to naval hospitals in Philadelphia, Pa., but the personnel of the base increased so rapidly and the transfer of cases to Philadelphia was attended with so much inconvenience and danger that the need of a naval hospital soon became urgent. The establishment of such a hospital was authorized during the summer of 1917 and the construction of the buildings began September 4 of the same year. The original construction comprised 15 buildings and serves the Wissahickon barracks, with a capacity for 2,500 men, Sewell's Point base, approximately 1,000 men, naval air station, approximately 500 men, and the shore patrol craft and mine sweepers based at Cape May. The total naval personnel of the above enumerated units averaged about 6,500 men during the summer of 1918. Patients were also received from Lewes, Del., and from the coast guard stations within the Cape May district. Finally the severity of injuries that occurred from accidents to aircraft made the need of a hospital at this section absolute.

The bed capacity in the buildings at present in commission is 84 patients with beds placed 8 feet between centers, and 107 patients with beds placed 6 feet between centers. The hospital corps barracks accommodates 30 beds with 8 feet between centers and 36 beds with 6 feet between centers. The civilian barracks hold 18 beds with 8 feet between centers and 26 beds with 6 feet between centers. Nurses' quarters yield 12 beds. The new construction will provide for beds with 8 feet between centers for 48 patients or with 6 feet between centers for 67 patients. The hospital corps barracks have 30 beds with 8 feet between centers or 42 beds with 6 feet between centers. Nurses' quarters can accommodate 7 additional beds. The extreme bed capacity of the buildings at present in commission is 107 pa-

tients, 62 beds for the hospital corps and enlisted men of other ratings of the hospital personnel, 12 beds in nurses' quarters. The extreme total bed capacity of old and new construction, recreation hall, balconies, and tents will be 377 beds.

One of the junior medical officers was especially efficient in surgical work, and he was detailed in charge of that department. Later a medical officer, with training as an eye, ear, nose, and throat specialist, reported for duty and to him was assigned the work coming under those heads. A junior medical officer of the regular service detailed to the hospital from the United States Naval Medical School, Washington, D. C., was placed in charge of the laboratory. Each of these officers has continued on duty at the hospital throughout the year, and their work has been of the highest character. To them is largely due the creditable showing of the institution.

One of the pharmacists was placed in charge of the records and correspondence. The other was placed in charge of the commissary department, requisitions, and stores. A total of 197 surgical procedures have been undertaken; of this number, 94 should be classed as major operations. There were no deaths.

It was to be expected that the establishment of a large hospital in the middle of a cornfield in an isolated community like Cape May would be attended with difficulties. The obstacles met, however, were not as great nor as numerous as was anticipated. The chief trouble was occasioned by the dilatory work of constructing contractors furnishing equipment and supplies. Great credit is due to the hospital personnel for their uniform devotion to duty and their efforts to give their best to the service. Several of the commissioned officers and many of the enlisted force gave up important and lucrative positions in civil life to render service to the Nation in time of emergency.

In June, 1918, additional construction was authorized. This included:

- Isolation ward with five units.
- Surgical ward with X-ray room.
- Recreation hall.
- Hospital corps barracks.
- Sick officers' quarters.
- Laundry, storehouse.
- Extension to nurses' quarters.
- Extension to the original surgical ward for an eye, ear, nose, and throat room.

*Charleston, S. C.*—There are now in the course of construction, for which equipment has all been requisitioned, additions for the increased number of patients, as well as dormitories for hospital corpsmen and civil employees. These buildings in the main are two-story, cement stucco, more durable and better planned than the buildings previously erected. The arrangement is along the lines already established with a view to saving as many of the tall, long-leaved pines as possible and purposing to connect all the buildings by a covered walk. A kitchen, or main galley, of this hospital has been completely remodeled. An addition has been built for a special diet kitchen under the charge of a trained dietitian. The main galley itself has doubled in size: the dishwashing room has been enlarged, and two Crescent dishwashing machines have been installed; a large cold storage and refrigerating plant has been established, and modern, up-to-date kitchen machinery is now in place and in good working

order. The laundry has been enlarged, by an addition, whereby all clean laundry is received, sorted, and stored; a new washer and wringer have been added. The recreation hall, where moving pictures, dances, and other amusements are provided not only for the staff but for hospital patients, continues to be a great source of pleasure as well as an attractive place for reading and writing. The contagious unit of this hospital, which is divided into cubicles with runways, has proved invaluable and from a practical viewpoint has established the fact that cross infections, when carefully and skillfully handled, can be prevented, or at least reduced to a very small number. A special serving diet kitchen has been installed and equipped with modern warmers, sterilizers, etc. The hospital corps quarters are nearing completion. They will afford accommodations for 200 hospital corpsmen. Sitting rooms, etc., have been provided and all modern conveniences.

To get the hospital corpsmen away from the scenes of their activity, so that complete relaxation may take place, is not only desirable but is essential to keep them physically fit and mentally contented. Outdoor recreation should also be provided and the tendency to stay under cover discouraged. The water supply is tested weekly by the Public Health Service as well as frequently by the city chemist and is found to be potable but with a distinct characteristic taste which is not at all agreeable. An artesian well has been approved for this hospital, and it is the intention of the medical officer in command to utilize this water for drinking purposes. The sick frequently, and with some justice, complain of the odor as well as the taste of city water. Since going into commission this hospital has practically been maintained by enlisted and enrolled personnel so as to have the entire force under complete military control, and the plan has been productive of excellent results. Not only is it a great saving to the Government from a financial viewpoint, but the care and treatment of the sick will be most markedly improved. A supply officer has been detailed to duty at this hospital with the necessary personnel. The wisdom of this has been demonstrated many times and the efficiency of the administration here markedly helped. The administration building has been increased in size and a fireproof vault for the filing of records has been built. A cemetery has been plotted, and a fence around the grounds to be used for that purpose has been authorized.

*Chelsea, Mass.*—When war became imminent a naval hospital base for the first naval district was established, with the commanding officer of the United States Naval Hospital, Chelsea, Mass., as director. The base included the naval hospital at Portsmouth, N. H., and all important and suitable hospitals in the metropolitan district of Boston and the Marine hospital and civil hospitals of Portland, Me. In general all civilian hospital facilities in the localities mentioned were assured to the Navy in case of need, and the majority of the institutions tabulated in advance rendered good service.

The professional care of patients in civil hospitals was given by the staff of each one except in the case of the Massachusetts General Hospital where wards, nurses, and orderlies were supplied but professional attendance was rendered by naval medical officers under the able supervision of Lieutenant Commander R. B. Greenough, Medical Corps, United States Naval Reserve Force. In every case,

however, the health records of Navy patients and administrative matters relating to them were in the hands of the Navy, those relating to the Bureau of Navigation or to the Bureau of Supplies and Accounts going through the United States Naval Hospital, Chelsea, Mass., whose commanding officer administered all disciplinary affairs.

In distributing patients from the various naval units of the district, those requiring hospital care were not, as a rule, transferred directly from these units to the civil hospitals. As patients were generally transferred from the units with "diagnosis undetermined" or with faulty diagnosis, it was found desirable to first send them to the naval hospital as a clearing house. As the naval hospital filled up, suitable patients were detailed to appropriate civil hospitals and the transfer of patients to certain civil hospitals unsuited to the facilities of said hospitals was avoided. Moreover, by this method, a more accurate record of the patients and of the Government's obligations was established. Similarly, patients to be discharged from the civil hospitals were first brought to the naval hospital for examination and final disposition.

The hospital base was well supplied with ambulances, and contracts were made with private ambulance companies for additional service when required, so that communication with the various units and hospitals was readily maintained.

Care of patients was also provided for by the residents of Boston and vicinity. Many families extended invitations to the director of the hospital base to send convalescent patients to them for gratuitous care. Advantage was taken of these offers and the capacity of the hospital base was therefore considerably increased. Great care was exercised in the selection of the patients to be provided for in private homes and no regrettable incidents occurred. It is believed that this courtesy was not only a direct help to the Navy, but as the beneficiaries came from all parts of the United States, Boston's generous hospitality probably tended to add to the friendly feeling existing between the different sections of the country.

To still further increase the capacity of the hospital base and with a view to rendering the naval hospital independent of the civil hospitals, the use of which was very expensive, increase in the capacity of the naval hospital to 1,200 beds was recommended by the commanding officer early in the war.

An important addition to the United States Naval Hospital, Chelsea, was a large and well-equipped laboratory intended by the bureau to serve not only the hospital base but the entire first naval district. The laboratory and equipment were planned by Lieutenant Commander M. J. Rosenau, Medical Corps, United States Naval Reserve Force, and the conduct of this service was under his supervision. Close cooperation was maintained with the medical aide to the commandant of the first district and the district sanitary officer under his jurisdiction, so that the laboratory served a very useful purpose in outbreaks of infectious disease in the various units of the district, and in connection with other sanitary matters.

The administration of the hospital and the hospital base was facilitated by the activities of the American Red Cross and the Woman's Seamen's Friend Society. The former organization built on the hospital reservation a large, well-equipped recreation building

for the enlisted men and excellent tennis courts for the nurses and furnished a welfare worker for the hospital base in the person of Miss Ruth V. Emerson, an assistant field director of the Red Cross, an experienced welfare worker. All of the philanthropic activities of individuals and associations were placed under the supervision of Miss Emerson, who, with her trained assistants, rendered most valuable service. The Woman's Seamen's Friend Society, of which the president is Mrs. Herbert D. Heathfield, built at two of the civil hospitals occupied by naval patients recreation buildings that were invaluable at those hospitals, and the society rendered many other services for which the organization was well fitted by long experience in the maritime field.

Arrangements were made with the medical school of Harvard University for a series of lectures on naval medical subjects to be given by Commander G. F. Freeman, Medical Corps, United States Navy, in that institution, the lectures to be open to the students of Tufts Medical College, of Boston. These lectures were well attended by students from both schools and apparently excited much interest in the activities of naval medical officers. Every effort was made to bring to the attention of graduating students the desirability of entering the Navy. The results were fairly satisfactory.

Hospital corpsmen were secured by recruiting campaigns carried on by the personnel of the naval hospital and by publicity measures pursued by the Woman's Seamen's Friend Society.

In order to release hospital corpsmen for sea duty and to make it possible to carry on the clerical work that was greatly increased by reason of expansion of the hospital's activities, advantage was promptly taken of the law which permitted the enrollment of women yeomen. The second woman yeoman of the Navy was enrolled at the United States Naval Hospital, Chelsea. These women were selected with great care and proved to be very zealous and efficient.

As it was impossible to send new medical officers to the United States Naval Medical School, Washington, D. C., for special instruction, a school was organized at the United States Naval Base, Boston, Mass., the curriculum of which school followed in a general way the lines of the United States Naval Medical School, Washington. The facilities of the medical schools and hospitals of Boston were placed at our disposal for this purpose. Various courses were given at the Harvard Medical School, at the different hospitals, and at the naval hospital. To stimulate interest and to disseminate knowledge, a medical society was formed of all the medical officers at the station. Once a week meetings were held at the naval hospital, when papers were read and discussed. These meetings were highly profitable.

The reserve officers who were attached to the United States naval hospital base of the first district were competent and zealous men. They embraced some of the principal specialists of Boston. The professional intercourse between the regular officers and the reserve officers of the Navy was beneficial to both, and the admiration was mutual. The reserve officers frankly expressed their admiration for our naval methods and were particularly impressed by the versatility of the naval medical officers.

The commanding officer of the United States Naval Hospital, Chelsea, had, by reason of the war, a duty which is unusual for commanding officers of hospitals to perform. The radio station is situ-

ated on the hospital reservation. At the beginning of the war the commandant placed the radio station under the protection of the commanding officer of the hospital, and it was impressed upon him that he would be held responsible for the safety of the plant. Accordingly, the radio station was surrounded with a high barbed-wire fence charged with electricity and connected with a bell in the transmission room of the station, so that cutting the wires of this fence would sound an alarm. The strength of the Marine detachment at the hospital was increased and three posts were established at the radio station. Stringent rules were established relative to the admission of visitors to the naval hospital reservation and the paths and roads they were allowed to follow. The sentries were instructed to fire upon any person who persisted in an effort to reach the radio station without presenting a pass. Several attempts were made by strangers to gain access to the radio station. Two men were arrested, one of whom was turned over to the Federal civil authorities; the second man was released, as it was quite apparent that his intentions were innocent. Several would-be trespassers at night were fired upon by the sentries. That the protective measures employed were efficient is proved by the fact that the radio station emerged from the war intact.

New temporary buildings, which are known as groups 1 and 2, were completed and put in use during the year. In group 1 the hospital corps barracks were occupied during the week of April 29, the subsistence building, two wards and laboratory during the week of May 13, and all the rest of the wards, except the detention ward, during the week of May 18. Group 2 was placed in commission during the week beginning September 1 at the outbreak of the influenza epidemic. These groups consist of 19 wards, 2 subsistence buildings, 2 hospital corps quarters, a laundry, a garage, a bag and sterilizer building, and a Red Cross building. These buildings, while of temporary construction, have proved satisfactory except in minor details, such as leaking roofs, cracks, and defects which have developed from the use of unseasoned lumber. The nurses' quarters in the old hospital building have been very much enlarged and extended. The second floor of the west end, formerly occupied by the Marine guard, has been remodeled for nurses' rooms. The Marine guard has been transferred to the third floor of the west wing, and the hospital corps, formerly occupying these quarters, has been transferred to the new hospital corps barracks in groups 1 and 2. The first floor of the old hospital in the west wing has been entirely remodeled, making a fine new dining room and kitchen for the accommodation of 70 to 80 nurses. This whole building has been thoroughly adapted for a nurses' home.

The diet kitchen, which was installed in the basement of the main hospital, has proved to be insufficient in size for the expanded hospital. Authority has, therefore, been granted to double the size of this diet kitchen, and work will be begun shortly and carried to completion as soon as possible.

On October 15 the ground was broken for the new construction of 14 wards, subsistence building, hospital corps quarters, and receiving ward which will, in the future, be known as group 3. These buildings should be ready for occupancy within three months, but

probably on account of winter weather will be somewhat delayed. This new construction will give an additional 400 beds to the hospital and additional accommodation for 70 hospital corpsmen. The need for a dentist on duty at the hospital has been apparent for some time. One of the rooms in the basement was taken over and fitted up for a dentist's office. Good light, running water, and electricity were easily supplied from adjoining compartments, and a first-class dentist's office with two chairs is now installed and in the hands of a capable dentist who has ever since been doing most excellent work. On September 25 orders were received to discontinue burials in the cemetery on the naval reservation as soon as arrangements could be made for the purchase of a lot in the Woodlawn Cemetery of Everett, Mass., to accommodate 300 graves. Complete purchase of this lot was effected November 21, 1918. The question of food supplies is always of intense interest in hospital management and the introduction of the cafeteria system which was effected in 1917 has proved a great economy. It has, however, required the equipping of all mess halls with large-sized steam service tables. The operation of this system is considered responsible for keeping the daily cost of rations within reasonable bounds during the constantly mounting cost of provisions incident to war conditions. A comparison of the cost of rations for the fiscal years 1917 and 1918 and for the first half of the fiscal year 1919 will show how thoroughly the work has been supervised in this hospital and what the results are, much of which is attributed to the cafeteria system, but principally to the commissary officer at this hospital who has so efficiently carried on his duties.

Average ration fiscal year 1917.....	\$0. 5580
Average ration fiscal year 1918.....	. 5395
Average ration fiscal year July, 1918, to December, 1918, inclusive.....	. 5718

The delivery of cooked food in hot and appetizing condition from the galleys to the outlying wards has presented an awkward problem. Its solution was first attempted by means of food trucks so constructed that the food containers were immersed in hot water. These trucks proved cumbersome and poorly adapted to outdoor work. Service from them to the various wards also resulted in confusion and delay and a consequent deterioration in the condition and quality of the food. An excellent substitute was found in the aluminum five-compartment food carrier now so generally used in the service aboard ship. These carriers are well warmed before the food is placed in them and are easily and quickly carried to the wards by persons detailed for that purpose. They are convenient, easily cleaned and accomplish the desired result. More accommodations for sick officers will have to be installed if the present demands are to continue. With accommodations for only 18 sick officers and with often a sick officer personnel of nearly double that number, it has been found necessary to transfer officers to outside hospitals or to send them off on sick or convalescent leave, keeping informed of their condition from day to day. This is a practice which should not obtain in naval hospitals, and the only way to prevent it is by building additional quarters. In all of the expansion which has been made at this hospital, from about 200 to 1,400 beds, there has been absolutely no increase in the number of beds available for sick officers unless they were placed in the open wards.



The following table gives the ordinary data in regard to admissions and discharges, sick days, etc., during the past year:

Remaining from last year.....	1
Admitted during year.....	1,746
Readmitted during year.....	2,688
Discharged to duty.....	7,672
Diagnosis changed.....	2,006
Died.....	259
Invalided from service.....	358
Deserted.....	14
Transferred.....	220
Continued to next year.....	681
Total sick days.....	239,384

The facilities and services of 14 civil hospitals in this district of metropolitan Boston have been utilized in accordance with contracts made with them during the year. These contracts have in practically all instances been most satisfactory. Most of the hospitals have been only too glad to accommodate Navy patients even to the extent of excluding civilian patients when it became a question of sufficient number of beds. The staffs of these hospitals have taken care of naval patients without remuneration and have worked gladly and efficiently as a part of their contribution to the successful carrying on of the war. During the year patients have been sent to and treated in these civil hospitals as follows:

	Agreed.	Treated.
St. Elizabeths Hospital.....	194	106
Massachusetts General Hospital.....	100	436
Peter Bent Brigham Hospital.....	100	220
Massachusetts Homeopathic Hospital.....	115	715
Carney Hospital.....	207	278
New England Deaconess Association.....	36	145
Newton Hospital.....	80	148
Boston City Hospital.....	50	10
Massachusetts Charitable Eye and Ear Infirmary.....	50	340
Cambridge Hospital.....	50	19
Brooks Hospital.....	50	45
Faulkner Hospital.....	50	22
Massachusetts Commission on Mental Diseases.....	50	80
Waltham Hospital.....	50	80
		2,644

During the year it has been possible through the assistance of the Red Cross and a number of interested women in Boston to introduce here a system of occupational therapy, not primarily for the reeducation or reconstruction of damaged men from the war itself but as a therapeutical measure of aid in the convalescence of patients of all classes. This work was taken up by Miss Brackett and her assistants in a most whole-hearted way, and there have been introduced into the various wards the making of rugs, ties, wood carving, string work, bookbinding, basket work, and other occupations which have been most helpful in producing rapid and cheerful convalescence. The equipment for this work was furnished originally by the Red Cross, and as the articles were finished the makers had the privilege of paying for the material, with a slight addition for the production of a fund, and then they could own the article produced or, not desiring it themselves, the instructor would take over the work and, by sale, receive a sum of money which would be divided

between the producer, the Occupational Therapy Club, and the fund for the purchase of materials. This is a matter which should be introduced into all hospitals as it has proved so very successful not only in this case but in many civil hospitals where it had been previously introduced. In April, 1918, the American Red Cross detailed a medical social worker to the United States Naval Hospital, Chelsea, Mass., for duty under direction of the commanding officer to render service to the patients and the hospital staff. The work of the Red Cross has so increased that the staff now consists of five full-time workers, one half-time worker, one secretary, and one stenographer. In the latter part of the year the American Library Association very generously established a branch at this hospital. It has supplied the library in the Red Cross house with several thousand volumes and added to the amusement feature of the library consisting of books on literature, poetry, travel, etc., a large section composed entirely of technical books. These books have been largely drawn upon by men of the Reserve Force, who at the close of the war expect to return to occupations in civil life.

Total surgical operations, major-----	452
Deaths on the surgical service during 1918-----	37
Laboratory examinations (total)-----	34, 273
Total X-ray examinations-----	3, 565

*Great Lakes, Ill.*—Owing to the increase of the personnel of the training station the professional activities of the hospital have been much greater than in 1917. The daily average of patients was 1,068 in comparison with 377 for 1917.

Owing to the bureau's foresight in providing the station with a large emergency hospital in 1917 it was possible to meet the shock of the sudden development of influenza in September and by expanding into Camp Ross to care for all patients sent to the hospital. At the outbreak of the epidemic the hospital could care for about 1,800 patients in buildings and tents. At the height of the epidemic there were 2,604 patients in the hospital. One thousand seven hundred and fifty folding beds were obtained from a manufacturer in Kenosha, Wis.; bedding, towels, pajamas, etc., were obtained from the dealers in Chicago. These articles were all procured at once by the supply officer and forwarded by station motor trucks to the hospital. In caring for the shipment of the bodies of those who died it became evident that the ordinary method of having the express company call for the remains at the hospital, could not be followed and it was requested that the supply officer have express cars placed on the tracks between the hospital and Camp Ross, whither the remains were carried as soon as prepared. Twice each day cars were sent to Chicago and in this manner it was possible to forward the remains promptly, no body being held 24 hours after the proper shipping address had been received from the next of kin.

The hospital, of course, did not have a suitable number of trained nurses or hospital corpsmen to care for the large number of desperately sick and dying men, and as soon as it became evident that we would probably need additional nurses they were procured through the good offices of the Red Cross in Chicago and the committee on national defense of the M. W. Grand Lodge, A. F. & A. M. The hospital corpsmen were drawn from the hospital corps school on the station where they were undergoing instruction. By these means

we had at all times an adequate personnel and there was no suffering for want of sufficient nursing. The hospital had an adequate staff of medical officers. Seventy additional yeomen were obtained from the training station to do the clerical work and answer the telegrams that came in hundreds.

The entire hospital force, naval and civil, responded splendidly to the demands made upon them. In several instances doctors, nurses, and hospital corpsmen had to be ordered off duty as it was evident that they had overworked and would break down under the physical strain and mental distress that they were suffering.

In consequence of the admirable work of the staff of the hospital there has been practically no complaint by the relatives and friends of those who were sick or died, and in no instance was complaint justified. In fact practically all of those who have complained have acknowledged that they were satisfied when conditions were explained to them.

The emergency hospital buildings have met the needs in all respects for which they were designed. The extreme weather in January and February was the best practical test for the buildings, and they caused no inconvenience. The wards were bright, well ventilated, and pleasant, and have been the subject of favorable comment by all who have visited the hospital.

*Key West, Fla.*—The naval hospital at Key West went into commission June 4, 1918, with a capacity of 156 patients and a total of 264 beds, including those for medical officers, nurses, hospital corpsmen, marine guard, etc. The outstanding structural feature of the hospital is its possession of large and capacious screened verandas with a total capacity of 50 beds. Each ward, excepting the isolation pavilion has an available section of veranda constantly used in preference to the inside quarters.

In the absence of any municipal water system in the city of Key West the hospital, in common with other premises in the city, is dependent on well water and rain water for its supply. Water for drinking and galley use and for the sterilizers, laboratory, and dispensary is collected from the roofs of various buildings and stored in cisterns. The average annual rainfall for Key West as recorded by the local meteorological station is 38.66 inches. The total roof area from which rain is collected is something over 35,000 square feet. The total collecting capacity of the hospital roof area per year with a normal annual rainfall is about 775,000 gallons. Since going into commission the hospital has used something less than 2,000 gallons of rain water per day, or at the rate of 730,000 gallons of water per year, leaving an estimated margin of about 45,000 gallons per year. The adequacy of this margin depends entirely upon the distribution of rainfall throughout the year and the storage capacity of cisterns.

From the date of commission, June 4 to December 31 (310 days), the hospital had a total of 1,850 admissions, an average of 8.8 daily. The total number of sick days for this period was 28,562, giving a daily average of 136 patients in the hospital. Since July 1, when the regular flow of patients to the hospital may be said to have been established, the average number of daily admissions has been 9.1, and the average number of patients in the hospital 150.5.

*League Island, Pa.*—There was begun in the latter part of September an extension to the present hospital plant, which will include, when completed, nurses' quarters, to accommodate approximately 76 nurses; two new barracks, consisting of four dormitories, which will accommodate approximately 164 hospital corpsmen; a new subsistence building and 9 ward buildings, containing a total of 20 wards. When the buildings are completed the hospital will have a total capacity of 923 patients and 373 for duty personnel.

There have been 2,553 admissions during the year, giving a total of 60,633 sick days. Out of this number there were 125 invalided from the service and 100 deaths, causes for deaths being enumerated below:

Influenza .....	52
Pneumonia, lobar .....	22
Pneumonia, broncho .....	4
Endocarditis, acute .....	3
Pleurisy, suppurative .....	3
Tuberculosis, chronic pulmonary .....	2
Poison, wood alcohol .....	2
Lacerated wounds .....	1
Fracture of skull .....	1
Intracranial injury .....	1
Syphilis .....	1
Dementia præcox .....	1
Infarct of lung .....	1
Septicæmia .....	1
Appendicitis, acute .....	1
Abscess, acute .....	1
Cerebro-spinal fever .....	1
Nephritis, chronic parenchymatous .....	1
Tuberculosis of peritoneum .....	1

The hospital in addition to these cases admitted as patients has, from its convenient location in the yard, been called upon to perform many other duties in the way of special examinations in the laboratory and the eye, nose and throat and X-ray rooms. In the X-ray department 1,057 pictures were taken, exclusive of fluoroscopic examinations and types of electrical treatment.

A considerable amount of work has been done in the laboratory during the past year and has covered a wide field of activity involving nearly 17,400 special examinations.

*New London, Conn.*—On February 23, 1918, the only hospital facilities existing at this station consisted of the new almshouse building which had been recently rented by the Navy Department from the city of New London at an annual rental of \$6,000. This was a new brick building, well located on high ground, but poorly adapted for hospital purposes as the interior was entirely subdivided into small rooms, with no space available for use as wards. Deducting necessary office space and quarters for hospital corpsmen, it was found that this building would only accommodate about 40 patients as a maximum with no proper provision for the care of contagious cases. As the naval personnel in this vicinity from which the hospital would draw its patients, including ships and the submarine base was expected to approach—and actually has exceeded—a total of 7,000 it was evident that additional facilities were needed at once, and steps were taken to acquire by rental, the Memorial Hospital buildings which were fortunately located on the opposite side of

Garfield Avenue. After acquiring this property the bed capacity was about as follows:

Almshouse	40
Memorial Hospital (main building)	70
Memorial Hospital (contagious annex)	30
	140

After consultation with the public works officer, it was decided that \$10,000 would be necessary to place the Memorial Hospital in serviceable condition, most of this sum being required for new plumbing, new electrical wiring, repairs to walls and floors and minor alterations in the main building and the nurses' home. This sum was promptly allotted upon telephone request to the Bureau of Medicine and Surgery and the repair work was conducted expeditiously and successfully without interfering meantime with the use of the main buildings. In addition to the above, tents were obtained and gradually added to, until ultimately 19 were set up. They were in constant use until the advent of cold weather. The almshouse was used primarily as an administration building and quarters for the hospital corpsmen, also for the main commissary department. The kitchen facilities were greatly expanded until it became practicable to cook for and serve more than 300 persons at one time. The kitchen in the Memorial Hospital building supplied the personnel there and also patients in the contagious annex and the nurses' home. As it was evident that further expansion would be necessary the Bureau of Medicine and Surgery was so informed and it was recommended that additional wards, laundry, and power plant and garage be built on vacant land adjoining the almshouse and already included in that lease. These recommendations were approved and the new buildings were completed in December. There were five wards, each with a maximum capacity, four being in an H-shaped building, two stories high. The lower stories were of hollow tile construction, the upper stories of wood.

In June Mr. Morton F. Plant very generously offered the use of a large residence, surrounded by 20 acres of ground, beautifully located on the Groton side of the Thames River, the same to be used as a convalescent annex to this hospital. The offer included \$10,000 to equip the building for hospital purposes. As it was impracticable to accept this offer as a gift, the property was leased for the period of the war for the sum of \$1. It was promptly placed in commission and so continued until the advent of cold weather, proving of the greatest benefit, as there were ample facilities for the care of 60 patients, and it was kept filled nearly all the time. By the end of August, the daily average of patients was about 200, and about this date cases of influenza began to occur at this station. As it was evident that an epidemic was beginning, and the hospital facilities were already overtaxed, steps were taken to acquire additional space, and on September 12 the State armory was taken over as annex No. 2. This building consisted of one large room under a very high roof, and ample kitchen facilities. It had for some time been in use as a dormitory for men attached to the naval district base, as many as 360, in double standee bunks, having been berthed there. The last of these men, with most of their double berths, left the building about 6 p. m. on the above date, and two hours later the place was

cleared and cleaned, patients being received and the place was in operation as annex No. 2. We had anticipated placing about 200 patients in this building, and within a few days 189 were actually being cared for, but owing to defective ventilation it was considered unsafe to continue so many. With the approval of the commandant and the Bureau of Medicine and Surgery, the so-called Harris estate was leased for a period of four months, dating from September 18. The building is a large brick residence, centrally located in the city, surrounded by ample grounds, and well adapted for hospital use, accommodating 60 patients. It had not been occupied for three years. Verbal arrangements to take over the place were completed at 10 a. m., and the building was cleaned, manned, and equipped the same afternoon and patients were received that evening. It was necessary to continue work all night installing kitchen equipment, but everything was ready by the following morning. This annex, known as No. 3, remained in operation for a little over three months, and proved very useful and satisfactory. It was leased for a period of four months in order that it might be utilized in place of annex 1 after the epidemic of influenza subsided, thus tiding over the interval before the completion of the new wards.

With the rapid spread of the epidemic, existing facilities were still insufficient and the arrangements were made to equip Barracks A, naval district base, (annex 4) as a hospital ward. This was done on September 22, the building proving admirable for the purpose and accommodating 125 patients without overcrowding. Subsequently the Y. M. C. A. Building was equipped for pneumonia cases and also a part of the nurses' home was partitioned off for similar use, these additions being known, respectively, as annexes 5 and 6, with total accommodations for 42 pneumonia cases. A portion of the lower floor of the nurses' home utilized for hospital purposes was set aside for the overflow of female patients, a large number of yeomen (f) on this station causing a steady inflow of patients for which our facilities at times were inadequate, as they required special facilities of every kind. At the beginning of the epidemic annex 1 was completely cleared of convalescent patients and thereafter kept filled with influenza patients. It will thus be seen that at the height of the epidemic, and for a period of several weeks, it was necessary to man and equip six different annexes at widely separated places, besides the hospital. This proved an enormous strain on the personnel and the difficulties were very greatly exaggerated, owing to the illness of a large proportion of the medical officers, nurses, and hospital corpsmen on duty, many of whom contracted influenza and pneumonia resulting in the death of one medical officer. Up to January 1, 915 cases of influenza and pneumonia were under treatment, the maximum number of all patients in the hospital on any one day being 528. It can be confidently stated, however, that each patient received every possible care and attention and that at no time have facilities been lacking in this respect.

Special efforts were made from the beginning to detect pneumonia upon its earliest development, and, as a routine, *each person was personally examined by a medical officer four times daily. In this way pneumonia cases were at once segregated*, and it is believed that this resulted in great saving of life, our pneumonia mortality being 26 per cent, which is considerably less than the general average so far as

reported. Some of the medical officers remained continuously in and about their wards for a week or more, and one medical officer remained continuously on duty for 72 hours when he suffered a physical collapse.

*New Orleans, La.*—The experience of the year has effected no change in the opinion expressed in last year's report concerning the general excellence of the hospital layout. Rapidity of construction and the temporary purpose of the structures have lead to faults of finish and omissions of utilities which are being corrected to meet daily needs and which can be further remedied should the activities of the plant be prolonged. It is recommended that an additional pavilion be built to duplicate the present contagious disease pavilion. This would provide for four varieties of contagious diseases. An alternative plan would be to assign the neighboring building now used as the yard dispensary to the hospital and reconstruct it for service as a contagious disease annex to the hospital.

*New York, N. Y.*—Because of war needs the organization and administration of the hospital has necessarily undergone many great changes. The machinery that was sufficient to run the institution with 150 or a maximum of 200 patients could not cope with the problem of caring for 3,000 or more. The most prominent feature of the new régime was the assignment of three assistants to the executive surgeon to handle the details of the three principal activities of the hospital, i. e., medical, material, and personnel. The scheme has worked well and covers the activities of the hospital in a satisfactory manner, thereby relieving the executive surgeon from the tremendous amount of detail work.

During the calendar year 1918, 24,943 sick and wounded men were received and treated in the United States Naval Hospital, New York, N. Y., and in civilian hospitals under contract to the naval hospital. The medical staff of the hospital consisted of the commanding officer, the executive surgeon, 4 other medical officers, 5 pharmacists of the regular service, and 70 medical officers of the Reserve Force.

The clerical department of this hospital has undergone great expansion in 1918. The executive office is under the charge of a pharmacist and a corps of trained assistants. In this department, all matters pertaining to service records, deaths, and filing system of patients in the hospital and of those who have left, are cared for, as well as all correspondence pertaining to the Bureau of Navigation.

The record office is under a pharmacist and a corps of trained assistants who handle the preparation and forwarding of all forms pertaining to the Bureau of Medicine and Surgery, daily statistical reports, and the accountability of all patients admitted and discharged and remaining in the hospital. A great proportion of the work performed is of a technical nature peculiar to medical and surgical records, and yeomen of the Naval Reserve Force and the Regular Navy have been specially trained for the duties required in this office and have attained a high state of efficiency. They are now more proficient in this particular class of work than hospital corpsmen, whose services can be better utilized in connection with other duties more in accordance with their professional qualifications. The efficient maintenance of rotary files and the De Saussure system of file racks in use in the record office, the executive surgeon's office,

officer of the day's office, and post office, which show the location of patients and staff at all times, is a tremendous task in itself, on account of the many wards in this hospital, and owing to the large number of men being carried in outside units. Twenty-eight persons are required to carry on the operations of the record office. Previous to the war, not more than two men were required for it, which illustrates the great expansion that has taken place.

The adoption of the jacket system of recording and preserving the clinical history and the findings in each case have been of great service in writing up health records and in preserving exact data of this valuable scientific material for future reference and statistical use.

The system of watch standing for the officer of the day was revised in 1918 to meet the new conditions. The ordinary system, whereby officers stood watch in turn, was found inadequate. Too much time elapsed between watches for the officer to become familiar with this duty. Under the present system there is a senior officer of the day who exercises a supervisory control of the watch. The second and third officers of the day go on watch for a period of two weeks and alternate duty day on and day off with two other officers assigned for the same period.

Owing to the greatly increased number of men to be surveyed during 1918, it was found necessary to appoint a permanent board of survey of three medical officers for duty in this hospital.

To provide quarters for the hospital corpsmen on duty at the hospital, a large residence at 218 Gates Avenue, Brooklyn, N. Y., was rented, supplied with coal, gas, electric current, and furnished. A caretaker was provided.

At the present time negotiations are in progress to rent a residence at 304 Washington Avenue, Brooklyn, N. Y., in which members of the nurse corps who can not be accommodated at the hospital can be quartered.

Owing to the limited capacity of this hospital, contracts have been made during the present fiscal year with 48 civil and municipal hospitals in greater New York for the care of naval patients. For this purpose, during the first quarter of the fiscal year, 74 public bills were prepared amounting to \$423,621.30.

In connection with the increase in the volume of work of the property department, a comparison of the statements of cost of maintenance for the fiscal years 1917 and 1918 is submitted:

	1917	1918
Hospital maintenance.....	\$138,175.50	\$853,997.29
Provisions.....	53,990.78	132,533.29
Medical supplies.....	18,201.98	82,939.48
Ambulance service.....	10,816.46	11,143.70
Power house.....	19,992.21	20,976.17
Culinary department.....	7,634.22	16,337.71
Laundry.....	5,665.52	18,045.11
Care of grounds, buildings.....	22,624.64	71,272.01
Civil establishments.....	26,226.07	51,936.51
Land, buildings, permanent construction.....	9,437.21	3,749.90
Total number of subsistence days.....	104,998	224,341
Average cost per diem for maintenance.....	1.3159	1.9186
Average cost per diem for subsistence.....	.5134	.5005



On April 1 a supply and disbursing office was established in the hospital and activities began with the receipt of personnel and patient's accounts as follows:

	Accounts.
Personnel and patients, enlisted.....	1, 780
Officers.....	72
Nurses.....	85

The following data cover a period from April 1 to October 31, 1918, a total of seven months:

Enlisted men's accounts handled.....	10, 250
Officers' accounts handled.....	211
Nurses' accounts handled.....	113
Transportation requests issued.....	1, 439
Total disbursements on account of pay roll for period.....	\$526, 281. 55
Total disbursements on account of public bills.....	\$15, 484. 13
Amount of clothing issued for the period to the value of.....	\$14, 500. 00
Sale of ship's stores for four months, from July 1 to October 31, inclusive.....	\$10, 000. 00

Upon commissioning of the additional new mess hall, the following complement was established for each of the two commissary departments—1 chief cook, 2 assistant cooks, 7 mess attendants, 1 butcher, for duty in connection with both galleys.

In addition to the above there are detailed 1 cook and 1 mess attendant for night duty, an average of about 62 persons being subsisted nightly.

Owing to the difficulty of obtaining competent civilian help, a detail of enlisted commissary help was asked for. Total enlisted force now employed is 1 commissary steward, 1 butcher (storeroom keeper), 3 ship's cooks, 13 mess attendants, 2 storeroom keepers.

The total number now being employed in the entire culinary department is 39, which is an increase of 300 per cent over prewar strength.

At the beginning of the war there were rationed 201 patients. At present the average number is approximately 1,200, an increase of 600 per cent.

The new galley and mess hall in building C was placed in commission September 26, 1918, with a seating capacity of 196. On that date there were rationed 155 hospital corpsmen and about 72 crippled marines. At the present there are being rationed about 168 hospital corpsmen and about 210 patients. Considerable time is lost in rationing the crippled marines, as it becomes necessary on account of their physical condition to place food in containers on the table and also to clear the table of dishes after meals, it being impossible to employ the cafeteria system for them. As a rule the time required for one sitting is one-half hour.

The post office of this hospital was originally handled by one man who collected the mail, made all mail trips, and distributed the mail as well. The task of taking care of the great amount of official mail as well as that of a personnel of approximately 3,500 required a great deal of adjustment. At the present time six people are employed in the post office, of which a Navy mail clerk with one assistant has charge.

The transportation of all sick and wounded men to the U. S. Naval Hospital, New York, N. Y., and its subsidiary hospitals, for admission to other stations of duty when discharged, has been under the

direction of the commanding officer of this hospital. This service has been of great magnitude and was accomplished by the motor ambulance service and ambulance boats assigned to the hospital for duty. On January 1, 1918, there were three ambulances in this department. At the end of this year the number was increased to eight. Even this number was wholly inadequate to perform the work required, and the hospital was obliged to accept assistance from volunteer organizations. In the accomplishment of this important duty this hospital received highly efficient, willing, and untiring aid from the National League for Woman's Service, the Lafayette Motor Corps, the Motor Corps of America, and the American Red Cross Ambulance and Motor Service. The motor ambulances have responded to calls daily to all points in the third naval district. This work comprised:

- (a) Transportation of the sick to the naval hospital from ships, navy yards, naval stations, naval transports, and from residences and hotels.
- (b) Return of men to their ships or stations for duty.
- (c) Transfer of men from this hospital to civil, municipal, Army, or other naval hospitals.
- (d) Transfer to this hospital of patients landed by the ambulance boats.

The mileage for the hospital's ambulances for October, November, and December, 1918, was 18,023 miles.

Early in 1918 the U. S. S. *Hopetill* was assigned to the hospital for service as an ambulance boat. This vessel is a small yacht with power furnished by gasoline motors. The demands made upon the services of this vessel were always heavy and increased steadily as the year advanced. She proved inadequate for this increased work on account of numerous breakdowns due to hard service. On October 9, 1918, the U. S. S. *Sea Gate*, a small passenger steamer, was assigned to the hospital. These two vessels, with the aid of four scout patrol boats assigned late in 1918, performed all of the water transportation to and from the hospital during 1918.

The scope of this duty was considerable through the spring and summer and increased greatly in the autumn and winter on account of the appearance of an epidemic of influenza and the flow of sick and wounded from England and France to the port of New York.

The ambulance boats have provided transportation for the sick and wounded of the Navy between this hospital and all naval ships and stations accessible by water. The services of these craft were indispensable in handling the large drafts of men discharged to duty from this hospital and in the transfer of large drafts of men from this hospital to the United States Naval Hospital, Pelham Bay Park.

The necessity for increased hospital facilities in New York during 1918 was in direct proportion to the great increase in the Navy personnel during the year. This emergency was met through new construction and utilization of civil and municipal hospitals in New York and vicinity. Contracts between the United States naval hospital and these institutions were made whereby the medical and surgical staff of civil and municipal hospitals would provide medical and surgical treatment and subsistence for the sick and injured of the Navy. A medical officer was detailed to each hospital to act as supervisor of naval interests. Contracts were made with approximately all of the principal hospitals of New York City. The sick and wounded were in civil and municipal hospitals extending from Swin-

burne Island, on the south, to the Burke Foundation at White Plains, N. Y., on the north. The Willard-Parker Hospital in Manhattan and the Kingston Avenue Hospital in Brooklyn have cared for nearly all cases of contagious diseases occurring during 1918. During the influenza pandemic in the autumn of 1918 these hospitals rendered invaluable and efficient aid. All official matters, requests, records, granting of liberty, complaints, and disciplinary actions were conducted by the commanding officer of the base hospital directly through the supervisor of each hospital.

The Ruptured and Crippled Hospital in Manhattan treated orthopedic cases exclusively. Many cases of flat feet treated at this hospital were returned to duty.

The Rockefeller Institute received pneumonia cases during the winter of 1918 and administered serum treatment after establishing the group diagnosis of the infecting organism. During the spring of 1918 this hospital received many cases of syphilis which were treated by the Flexner method of administering "A-189."

The Burke Foundation was utilized for convalescing cases, both medical and surgical. The Brooklyn Home for Consumptives has been available for treatment of men suffering from pulmonary tuberculosis.

At certain times during the year, notably during the pandemic of influenza, the number of naval patients under treatment in civil and municipal hospitals averaged about 2,000 daily. At such times it became necessary for medical officers to perform the duties of internes in several hospitals in which the house staff was incomplete because of depletion by war needs.

The administration of all civil and municipal hospital affairs, records, and transfers pertaining to the Navy sick in these institutions has been under the direction of the chief supervisor and 21 assistant supervisors.

Civil and municipal hospitals in which Navy patients were treated during 1918 and not previously mentioned were the Brooklyn Hospital, St. Mary's Hospital, Methodist Episcopal Hospital, Long Island College Hospital, St. Catherine's Hospital, St. John's Hospital, Broad Street Hospital, Flower Hospital, Hudson Street Hospital, Park Hospital, Coney Island Hospital, Cumberland Street Hospital, St. Luke's Hospital, Swinburne Island Hospital, Wycoff Heights Hospital, St. Vincent's Hospital, and Bellevue and Allied Hospitals.

During the spring months the large number of pneumonias of the pneumococcus type demanded the urgent attention of a large part of the medical staff. So far as possible these cases were properly typed, and serum was used in all suitable instances. The mortality, which was about 22 per cent, compared very favorably with that in other similar institutions. The large number of complicating empyemas (from 20 to 25 per cent) materially affected the death rate. During the late spring and summer months the mortality rate dropped to about 5 per cent, due, probably, to the diminished virulence of the germ and the increased resistance of the patients.

The daily average of sick through the spring and summer of 1918 was about 1,700. This number was suddenly increased to approximately 3,000 in October due to the pandemic of influenza, and this in-

creased number of sick was maintained thereafter by the numerous transfers from overseas due to the evacuation of the base hospitals in France and England after the signing of the armistice.

The hospital preparations for the care of large numbers of sick and wounded were put to a sudden and severe test by the advent of the epidemic of influenza in September, 1918. This occurrence of influenza in pandemic form during September, October, and November, 1918, tested the naval hospital's facilities severely. Influenza cases to the number of 1,137 were admitted from September 15 to 30, 1918. During the month of October, 1918, 1,549 cases were admitted. The strain produced by the epidemic on a hospital already filled with sick was sudden and severe.

During this period the use of serum from convalescent cases in the treatment of the acutely ill seemed to have a very beneficial influence and has led to its use as a routine measure in suitable cases. The staff was so organized that such cases received prompt and efficient attention, through the hearty cooperation of our laboratory.

The contagious hospitals of the city and the Bellevue and Allied Hospitals provided several hundred beds each. At no time during the epidemic was this hospital without a margin of 200 available beds.

In July, 1918, the first wounded men of the Marine Corps were received from France. From that time until the end of the year there was a steady flow of wounded transferred to this hospital from base hospitals in France and England. By December 31, 1918, 911 wounded men had been received from France. These cases were of every surgical variety. Many had limbs amputated by the so-called "guillotine" method found to be necessary in France to avoid infection by the gas bacillus. All cases requiring further surgical interference were operated upon in the surgical department of this hospital. In accordance with instructions from the Bureau of Medicine and Surgery 193 wounded Marines were transferred to Army reconstruction hospitals during 1918 for special treatment.

The majority of the returned marines reported with healed wounds, but elected to be discharged from the Marine Corps through medical survey. The advantages to be derived from special limited service, clerical opportunities offered by the Major General Commandant, the privileges offered them for reconstruction and rehabilitation and the details regarding the Vocational Education Act were carefully explained to all prior to recommending them for discharge by medical survey. Marines were not recommended for discharge by reason of physical disability until they had received the above information.

Owing to the large number of men in training stations and engaged in various naval duties in the third naval district and the large number returned from service abroad, the surgical cases have been far greater in number and variety than ever before in the history of the hospital. The surgical staff has been gradually increased to meet the demands of the service. Four surgeons were assigned to this division at the close of 1917, while 16 were required for the work at the close of 1918.

The majority of the surgical cases incident to military service were marines. The injuries sustained by these men present wide

variations which, in general, may be classified as injuries due to bullets, shrapnel, and shell fragments; bone injuries, injuries to nerve tissue, injuries to blood vessels, injuries to the soft parts, miscellaneous.

In many instances, owing to the nature of the injuries, but little more than first-aid work was performed at the hospitals at the front. This necessitated a large number of reamputations as well as plastic operations on stumps and other parts. Such surgical procedures were employed as were indicated by the individual case. Bone grafts have been used with marked success. The open treatment of fractures has not been employed as a routine measure but only in cases where suitable apposition of fragments could not otherwise be maintained.

Early in 1918 the surgical service made use of the Balkan frame in the treatment of suitable types of fractures and infected wounds. Two frames of standard construction were purchased, the others were made by the hospital carpenter. The advantages of the suspension-traction treatment of various types of fracture were well recognized and in the main results were excellent. The service was impressed, however, with the fact that satisfactory results were dependent upon the constant attention of one familiar with the mechanical principles of the apparatus. Data of advantage to the progressive treatment of individual cases were secured to each frame. Traction was made by use of an improved flue or the Steinman pin.

Infections have been treated by the Carrel-Dakin method, carried out by men who have had special training in the technic. The experience of the surgical service has been that the maximum results of this method are obtained within the first two weeks, and that prolonged treatment may not only keep the condition of an infected area at a standstill, but may have an unpleasant effect on the general condition of the patient. Dichloramin-T has also proved a very efficient agent in the control of infection.

Those marines received at this hospital requiring no further surgical treatment were disposed of in the following manner:

1. Where the wounds were entirely healed and no disability existed the men were sent to duty.
2. Patients whose wounds were entirely healed and could expect no further benefit from surgical, orthopedic, or medicinal treatment were surveyed either from the service or for special limited service under letter to the Surgeon General No. 126246, dated September 26, 1918, as the patient might choose.
3. Those cases which required artificial limbs, orthopedic appliances, or other special apparatus for treatment were surveyed for transfer to the United States Army reconstruction hospital nearest their homes.

Owing to the large number of cases of empyema admitted during the past year, exceptional opportunity was afforded the surgical service to study the merits of various therapeutic procedures. The following methods were employed:

1. Rib resection; irrigation of pleural cavity, followed by continuous application of Dakin's solution.
2. Rib resection; double-tube drainage into the dressings.
3. Thoracotomy with trochar and canula; insertion of catheter, aspiration of pus through catheter followed by injection of Dakin's

solution, which was left for 10 minutes, then aspirated. This was repeated at 4-hour intervals for from 4 to 6 days, then 10 c. c. of 2 per cent formaldehyde in glycerin was injected daily after aspiration. Precautions were taken to maintain the negative pressure within the pleural cavity.

The following methods of anesthesia have been employed:

1. Rebreathing Bennett inhaler.
2. Open-drop method.
3. Nitrous-oxide oxygen (Gwathmey inhaler).
4. Intrapharyngeal insufflation.
5. Rectal.

It was the policy of the service to keep two men constantly in training for a period of two months each under the supervision of the chief anesthetist. In this way anesthetists experienced in the use of modern apparatus were always available.

The rebreathing method with the Bennett inhaler has been the method of choice. Anesthesia is induced with nitrous oxide and followed by ether, the patient rebreathing. The advantages of this method are:

(a) It is more agreeable to the patient, the stage of excitement being avoided.

(b) Less time is required, the patient being ready for operation in from 2 to 5 minutes.

(c) Saves the amount of anesthetic material used, 4 ounces being the average amount of ether required per hour.

(d) A more even anesthesia is produced.

(e) The post-anesthetic effect is much less disagreeable.

Nitrous-oxide oxygen with the Gwathmey apparatus has been used in all cases brought to the operating table in shock, such as amputations, compound fractures, peritonitis, etc. It has always been used with good results in such cases as removal of sequestra empyema, painful dressings, incising abscesses, etc.

Intrapharyngeal insufflation has been used in operations about the head, such as mastoids, frontal sinus, antrum, etc. The apparatus is simple, consisting of a pharyngeal tube, to which is attached a rubber hose three to four feet long and which is in turn slipped over the neck of an ether can, the top of it having been previously perforated with three holes. The can is then rocked from side to side, producing a vapor which the patient takes upon inhalation. The depth of the anesthetic is controlled by covering or uncovering the holes in the top of the ether can.

Rectal anesthesia has been employed in the cases about the nose, mouth, neck, and larynx, such as goiter and extensive jaw cases. The patient is given an enema the day previous to the operation and a hypodermic injection of morphine one-half hour before going to the anesthesia room. A mixture consisting of ether, olive oil, and paraldehyde is then allowed to run slowly into the large bowel, the percentage being 1 ounce of ether to each 30 pounds of weight of the patient. Two-fifths as much olive oil as ether is used and 1 to 2 drams of paraldehyde is added. The total number of operations for 1918 was 1,036, exclusive of 361 operations in the eye, ear, nose, and throat department.

*Genito-urinary and dermatological service.*

Number of beds in genito-urinary service, November, 1917-----	65
Number of beds in genito-urinary service, November, 1918 (100 at Swinburne Island)-----	265
Number of medical officers, November, 1917-----	3
Number of medical officers, November, 1918 (2 at Swinburne Island)-----	8
Number of admissions during 1918-----	3, 198
Number of discharges during 1918-----	2, 949
Number of cases surveyed during 1918-----	174
Doses of salvarsan administered January to December, 1918-----	3, 542
Doses of salvarsan administered January, 1917, to January, 1918--	574
Amount of checkage of patients' pay:	
April 1, 1918, to June 30, 1918, inclusive—	
Officers-----	\$285. 21
Enlisted men-----	\$22, 252. 31
July 1, 1918, to Sept. 30, 1918, inclusive—	
Officers-----	\$306. 42
Enlisted men-----	\$25, 380. 62

It is believed that salvarsan was most satisfactorily administered in 0.4 gram doses at weekly intervals. Intensive administration at more frequent intervals predisposes to untoward results involving the nervous system and kidney substance. A Wassermann blood test was taken every week on each patient under antiluetic treatment, and although nearly all patients have shown marked clinical and serological improvement it has been impossible to retain all patients for treatment until a negative serological test had been obtained. Each patient was given a minimum of six salvarsan injections in conjunction with intensive mercurial medication in the form of intramuscular injections and inunctions before being restored to duty, and advised to have himself readmitted to the hospital in six months for another course of salvarsan treatment. Mercurial treatment is recommended during the intervening period while the patient is on duty.

On May 21, 1918, the Swinburne Island Hospital was opened to the Navy as an annex to the genito-urinary ward of the United States Naval Hospital, New York, N. Y. On this date 25 patients, 4 hospital corpsmen, and 1 medical officer, with necessary supplies, were transferred from the naval hospital.

Only one of the four wards on the island was ready for occupancy. The patients opened, cleaned, and made ready another ward in which 25 additional patients were put the following week. By the second week the third ward had been made ready by the patients and 25 additional patients were taken. The fourth ward was reserved for State cases and State employees.

All patients in good condition began to work on the grounds, cement and board walks, heating, lighting, and water systems, in all wards, executive building, boiler rooms, and laundry, all of which were practically out of commission as no repairs had been made for about three years previous to occupancy by the Navy. All wards and the executive building were given a second overhauling of cleaning, repairing, and painting.

The complement at the close of the calendar year was 115 patients, 5 hospital corpsmen, and 2 medical officers. An assistant medical officer was permanently detailed on October 7, 1918. Previous to this time the assistants were student officers detailed from the naval hospital for periods of two weeks each, beginning July 1, 1918.

The demands for the care of sick officers have increased remarkably from January to November, 1918, over previous years. There has been an increase from 15 to 45 beds. One year ago there was 1 day nurse and 1 night nurse, borrowing a hospital corpsman from the surgical floor whenever necessary. At the close of the calendar year there were 8 nurses and 12 hospital corpsmen. At first the officers were under the direct care of the executive surgeon, who did this in addition to his other duties. Later 1 surgeon devoted half of his time to their care, and now it requires the full time of 2 medical officers.

At the beginning of the year there was a daily average of 10 patients, which has grown to a daily average of 100 patients. Of this number 25 per cent are medical and 75 per cent are surgical cases. This increase in number of patients necessitated the use of rooms in outlying civilian hospitals, where 75 beds were made available.

In August of 1918 it became imperative to have a convalescent hospital in the country for the sick officers. This was made possible through efforts of the commanding officer. The place chosen was Burke Foundation, White Plains, N. Y., where 20 beds were at the disposal of the naval hospital. Patients were transferred direct by motor, a distance of 30 miles.

The following table shows the number of officers brought before a Board of Medical Survey and their disposition for the period from January 1 to November 1, 1918.

Sick leave .....	88
Psychopathic hospital .....	10
Tuberculosis hospital .....	23
Reconstruction hospital .....	3
Disenrolled and retired .....	36
Retained for further treatment .....	4

Total number of officers surveyed .....	164
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A report of the work in the eye, ear, nose, and throat department of the hospital for the year 1918 shows an increase in volume rather than any great change in character.

In general the increase in activities noted as beginning within a few months after the declaration of war and growing up to the present time may be assigned to different causes:

(a) The natural increase incident to the great growth in the personnel of the Navy and Marine Corps during the recent emergency.

(b) Injuries received aboard ship while at the front and engaged with the enemy.

(c) Sequelæ to the recent epidemic of influenza.

(d) Faulty enlistments.

(e) Conditions contracted or developed while in the service but not incident to it.

The total work performed by the X-ray department in 1918 is shown in the following table:

Total number of roentgenograms .....	5,191
Number of gastro-intestinal cases (bismuth series) .....	186
Number of patients from outside ships and stations .....	1,264
Number of navy-yard employees examined .....	234
Chest roentgenograms .....	1,738
Total number of patients .....	3,802



The work in the bacteriological laboratory for the year 1918 was characterized by a great increase in the volume and a considerable increase in the nature of the investigations. The space allowed the laboratory has not been increased, but plans for larger rooms will soon be put into execution. More than 15,000 laboratory tests and examinations have been made during the year.

In the dental department the number of patients treated was 535 and the number of operations and treatments aggregated 1,620.

Forty-four newly appointed assistant surgeons of the United States Naval Reserve Force, class of 1918 from medical colleges, reported here during June and July to receive training to fit them for active duty in the Medical Corps of the Navy. An intensive course of instruction was given for four months. Advantage was taken of the clinical facilities of this metropolitan medical center in arranging the course of study and the officials of hospitals, dispensaries and laboratories cooperated effectively and cordially by placing the services of their instructors and their vast amount of clinical material at our disposal.

The student officers acted as internes and attended clinics. A written course of instruction in naval administration, recruiting, and clerical work, based upon Naval Regulations and Instructions and upon the Manual for the Medical Department was conducted. The papers were examined, marked, and returned to the participants.

An extended course of weekly lectures and practical instruction was given by naval officers at this hospital in the following subjects: Naval administration, naval ethics, clerical work, tropical medicine, recruiting.

Opportunity was given to inspect fighting ships, transports, and hospital ships in a series of tours personally conducted by especially qualified officers.

On June 1, 1917, the nurse corps at this hospital numbered 30; it now numbers 74. It has been found necessary to greatly enlarge the housing facilities for the increased number of nurses. The nursing service at this hospital has been an active one, a large number of nurses stationed here having been transferred to foreign bases. The spirit and morale of the nurse corps has been very high. The nursing standard achieved at this hospital would not have been possible without the splendid cooperation and the faithful and loyal service of our hospital corpsmen.

All entertainments and welfare work here are under the direct jurisdiction of the commanding officer. The recreation hall at the United States naval hospital seats about 500. The program consists of vaudeville and moving pictures on Tuesday evenings and moving pictures on Friday evenings. Mass singing has been carried on regularly on one of these evenings. In addition, boxing exhibitions have been held from time to time.

On Wednesday afternoons and also Saturdays and Sundays tea has been served by the Red Cross. There is a stage for entertainments designed by Mr. Cornell, of New York. The scenery was donated by Mr. Physioc. There is a new stage curtain designed for the recreation hall. There are two pianos, one a player which is intended for use by patients.

Extensive building operations have been in execution during the last two years and further extension of hospital facilities on the grounds are contemplated. A new power plant has been erected, which is about 75 per cent completed and is in partial operation. A new laundry has been erected and is in full commission. An additional hospital building, for nurses' quarters, is in course of construction. The old medical supply depot is being remodeled at the present time for the use of the genito-urinary department of the hospital.

The new building, for the erection of which ground was broken November 30, 1917, was completed August 3, 1918, at a cost of \$298,612. This building has facilities for the care and treatment of approximately 300 patients. There is plenty of natural light and ventilation. There are sun porches, conveyances for transportation from floor to floor, proper isolation rooms and noise-proof rooms for the care of delirious medical cases and such mental cases as may temporarily come to the hospital for treatment, and special diet kitchens and offices for nurses. The dimensions of the main building are 163 by 29 feet with three-ward wings, 29 by 150 feet and varying in height from 25 to 43 feet; also two wings 29 by 20 feet and 55 feet in length and 45 and 36 feet in height, respectively. The mess-hall wing is 43 by 57 by 36 feet in height, with solariums on the south end.

Ground was broken for the erection of the power house on February 4, 1917, and although it is not completed nor turned over to the hospital, a 260-horsepower boiler furnishing the hot-water supply, heat, artificial ventilation, and operating the ice plant and refrigerating machinery and ice-cream freezer is in operation at present. Work on the new laundry was started October 18, 1918, and is now completed.

A great deal of work has been done during the year for the repair and maintenance of existing buildings. This has gone on without interfering with the systematic care of the sick and wounded.

*Convalescent care at the Burke Foundation, New York.*—In April, 1918, practically the entire facilities of this establishment were devoted to caring for convalescent Navy sick from the New York hospital base. The original superintendent, Frederick Bousch, then serving as lieutenant in the medical corps of the United States Naval Reserve Force, was detailed as naval supervisor. Some 200 sailors and marines were taken care of at a time and a total of 1,600 during the year. On an average of 1,700 dressings were done each month—there were as many as 70 empyema cases under treatment at one time. There was but one death from disease and one from accident during the period covered. Sending our men to an institution of this kind was somewhat in the nature of an experiment, but the results were satisfactory in the extreme and the devotion and skill bestowed upon the patients was highly appreciated by them and by the medical department.

The average stay of our convalescent patients was 35 days. Their average gain in weight during the period of treatment was 2.7 pounds per man.

*Norfolk, Va.*—The winter of 1917-18 was unusually severe, the Elizabeth River being practically frozen over from December 15 to February 1. During the spring and summer of 1917 temporary

buildings had to be erected for the incoming patients during the early period of expansion. These buildings were hurriedly built, but when finally completed and steam heated were fairly comfortable and served their purpose.

The spring epidemics of cerebro-spinal fever, mumps, scarlatina, and measles, with subsequent pneumonia, subsided to a large extent during the summer of 1917, but increased again with the advent of cold weather. By this time the proportion of contagious diseases was small, but due to the large increase of the personnel of the Navy the hospital population showed a steady increase. On January 1, 1918, there were 1,131 patients brought over from 1917 in the hospital. During 1918 there were 12,462 readmissions, 3,541 admissions, and 1,518 carried to 1919.

On January 1, 1918, the staff was small and unaccustomed to Navy regulations, routine, and ways. During the last days of December, 1917, the Surgeon General visited the hospital and with his approval the organization was modified to meet the new and greatly increased needs and the personnel was considerably augmented. Every part of the institution had outgrown its organization for work in times of peace.

A supply officer was assigned for duty at the hospital and instead of the men being transferred with health record and hospital ticket only they were transferred as to another ship with accounts and service record.

The commanding officer was authorized to exercise all the functions of a commanding officer on shore. The expansion of the hospital and the carrying of all records threw a great deal of additional work on the executive surgeon and it became necessary to relieve him of all operative surgery and in addition he was given an assistant. To make the organization conform as nearly as possible to that of a ship, the assistant was designated the first lieutenant. He had charge of the sanitation, cleaning and repairing of the buildings and grounds, and the detailing of convalescent patients for such light duties as they could perform without detriment to full recovery.

The administrative work was grouped, as far as practicable, under the three divisions of material, personnel, and commissary. The officer in charge of the material section was made responsible for the procurement of all supplies and services. He made all requisitions and vouchers. The personnel officer was in charge of all the work under the Bureau of Navigation; kept the service records of patients and staff; was responsible for correspondence reports and returns, and prepared orders issued by direction of or under authority of the Navy Department and the commandant of the fifth district. As a part of this section, but practically as a separate unit, since they had to work in separate rooms, was an officer with a clerical force in charge of the records, reports, and returns of the Bureau of Medicine and Surgery. The commissary officer, it will be seen, was relieved of all paper work in connection with the procurement of supplies and was free to devote his time to giving orders for supplies needed; inspection of them on delivery; their preparation and the mess service. This has proved a very satisfactory arrangement. As a part of the commissary establishment, there was a thoroughly educated and trained dietitian with two assistants. The dietitian prepared all the

menus for the regular and special diets. Her assistants had supervision of the diet kitchens. Although food regulations were not applied to the hospital, the market often made substitution necessary. Throughout the year a highly satisfactory and appetizing dietary was maintained.

The professional work of the hospital was divided broadly into surgical, medical, laboratory, and X-ray. In addition to this, the contagious camp was run as a separate unit. Thither were sent all the infectious diseases. The camp was administered by an experienced medical officer and all the young medical officers of the hospital took turns in the wards of the camp. Under the operating surgeon were all branches of surgery—genito-urinary, urologic, eye, ear, nose, throat, and dental. The medical work was under the senior medical officer of that service, and serving as a coordinating consultant was an experienced and skillful internist and laboratory expert, who maintained the connection between the laboratory and clinical features of all cases. The work of the X-ray department was about equally divided between the medical and surgical services.

The medical staff averaged about 60 officers. Some of these officers were men of experience and unusual professional qualifications but the majority were young men of limited experience and many were direct from the medical school.

The hospital was fortunate in having an interested and efficient chaplain who not only performed the functions of a spiritual adviser but helped materially with the general work of the hospital, particularly in Liberty loan and Red Cross campaigns and similar enterprises.

The average complement of nurses during the year was about 80. Under the helpful guidance of the chief nurse their work has been a credit to themselves and to the nursing profession.

There were about 30 yeomen (f). These included those of the hospital proper and of the pay office. Some were experienced clerks, typists, and stenographers, but all were at the beginning of their duty, entirely new to Navy ways and medical nomenclature. They took hold of their work with enthusiasm and did unusually well.

The hospital corpsmen averaged about 250. Some were licensed pharmacists, but the great majority were new to the naval features of caring for the sick.

Among the civil force were some old employees who remained at their posts in spite of the many inducements offered to work elsewhere. Their pay was raised from time to time to meet the increased cost of living.

During the year a new, handsome, fireproof, medical storehouse was completed. This was very much needed and is a valuable addition to the institution. Plans were made, contracts let, and considerable progress made on the extensive addition to the hospital. These new buildings are substantial, of hollow-tile construction, and decidedly attractive in appearance. The wards are all that could be desired. Comprised in this group is a complete two-story laboratory building with the necessary animal houses, etc. About half of this projected enlargement has been held in abeyance as the contracts for the construction were not made before the signing of the armistice.

On March 26, 1918, the medical officer in command reported to the commandant of the fifth naval district and the hospital became one of the units of the district instead of a part of the navy yard.

The hospital has endeavored to carry out the wishes of the Bureau of Medicine and Surgery in providing everything essential for the care and treatment of the sick and wounded. The Red Cross, Y. M. C. A., Knights of Columbus, Salvation Army, and many individuals cheerfully gave their assistance whenever requested.

Among the many things done for the men, the order permitting the granting of leave to avoid congestion in the hospital and for the purpose of recuperation, was probably more appreciated by the patients themselves and their families than any other single privilege. *A constant effort was made to keep families fully informed of the condition and prognosis of each patient seriously ill.*

It is a pleasure to note the fact that everyone connected with the hospital has worked whole-heartedly and enthusiastically and particularly during the periods of greatest stress.

The following notes are based on reports prepared by the individual officers in charge of the several departments of hospital work.

The duties of the executive officer as laid down in the Instructions for Medical Officers have grown to such great proportions in an establishment of this size that a good many of them have to be delegated to others. For instance it is physically impossible for him to make the complete daily inspection of the hospital and grounds. It has been found necessary to have a first lieutenant (along the lines of battleship routine) who follows up executive orders and sees that they are promptly and properly carried out. The first lieutenant's duties are concerned principally with details of cleanliness and material maintenance along the lines of general hospital upkeep, such as care of grounds, painting, repairs, etc.

The executive officer of all large hospitals (500 beds or more) becomes by force of circumstances a desk man. If, however, the executive officer has a first-hand knowledge of the internal administration, he can keep before the commanding officer a good picture of all hospital activities.

A daily "request mast" has proved a factor for increasing the contentment of the patients and enabling the executive officer to keep in close contact with the enlisted personnel. At this time requests for leave are taken up both for patients and for the staff, special liberty is granted, special money requisitions are allowed, clothing slips are approved for the care and comfort of the sick; complaints of all kinds are listened to and acted on and help is given in straightening out matters which though seemingly small in themselves are of great importance to the individual. It might be well to note here that a number of the men have stated that this is the first place since entering the service where anybody took the time or trouble to listen to them and try to help them out of their difficulties. This, of course, applies largely to recruits. As can be imagined this work demands considerable time but it is well worth it.

It has been found by practical experience that the first lieutenant should have a desk in the executive officer's office. Many things arise that should receive consideration from the executive officer before orders are issued to cover them. Plans have been suggested to make this effective later.

of the contagious camp, hurriedly constructed on the lines of war, while satisfactory for summer and autumn quarters, wholly inadequate for winter quarters. The conditions were and what means were employed to tide us over the months of a severe winter are already a matter of record. Adequate heat, adequate ventilation, adequate toilet, bath, and dressing facilities, the cross infection complication, and death were apparently no greater than those of many other hospitals. The total number of admissions from January 1, to and including December 14, were:

Cerebro-spinal fever	90
Diphtheria	109
Measles	249
German measles	36
Mumps	1, 296
Scarlet fever	190
Tuberculosis	244

Of the 244 tuberculosis patients admitted, 54 per cent were transferred to the United States Naval Hospital, Fort Lyon, Colo., and 35 per cent were invalidated from the service.

The old pesthouse, after being repaired, cleaned, and painted, was used as a local administration office and quarters for hospital corpsmen. With the onset of the measles epidemic in the fleet and training stations, the mess hall of this building was converted into a ward, and here, because of an adequate heating system (the only steam-heated building to January 1), were treated the measles-pneumonias. In April this ward reverted to its former status as a mess hall and instruction room for hospital corpsmen.

Complying with bureau orders of March 26 (Circular Letter P-18), a course in typewriting was added, nine machines being provided by the department. On the razing of the camp in August this class was transferred to the Red Cross building, where instruction was continued until the onset of the influenza epidemic. It has not yet been resumed.

From September, 1917, to August, 1918, all mess attendants and ship's cooks of the staff (not on subsistence) were quartered at the camp in the old boardwalk tents (erected 1907). No other quarters were available for them.

In May of this year, there being many vacant wards, all venereal patients were transferred to the camp and so remained until the razing of the buildings in August.

The first lieutenant's duties centered in the sanitation of buildings and grounds, their upkeep, and the detail of convalescent patients for light duty proportioned to their capacity as warranted by recommendations of the ward officers.

A day's routine was somewhat as follows: Transcribe and issue all orders to heads of departments; compile report of available empty beds; assign convalescent workers detail (special, 150; diet kitchen, 30; wards, 100). Typewritten notices are sent to each ward specifying the men so utilized and their work. Issue job orders to engineer, carpenter, painter, plasterer, and gardener; issue copies of job orders to the "follow up" detail; visit ward supply books; receive reports and give orders to ambulance and boat. Report absentees among civilian force; inspect wards and grounds, prepare

liberty lists, conference with executive surgeon, consideration of patients ready for discharge with a view to their replacing disenrollments, reports received from "follow up" details, reports from and orders to floorwalkers of corridor details, inspection of wards, preparation of reports of inspection and transmission of same to ward officers.

Each day of the week had its special additional duties in relation to weekly inspection by the commanding officer, fire drill, entertainments and amusements, etc.

There were further duties for special days of the month. During the period from July 11 to December 1, 1918, the following repairs were made: Plumbing, 927; electrical, 226; carpentry, 707; painting, 207; plastering, 66; in the grounds, 373; telephone, 66.

To encourage friendly competition in efficiency, neatness, industry, etc., a demerit system was instituted in September, and monthly charts were prepared as a basis for official quarterly marks of enlisted ratings assigned by the commanding and executive ward officers.

The surgical department during the war was greatly enlarged and at the same time felt the strain of rapid growth out of proportion to increased office and ward space.

At the beginning of 1918 the surgical division was divided into groups under the head of the surgical department. These consisted of the following subdivisions: (1) clean surgical cases, operative; (2) surgical, infectious, noncontagious; (3) fractures; (4) accident cases; (5) miscellaneous surgical, requiring little or no nursing, such as flat feet, old deformities, etc.; (6) eye; (7) ear, nose, and throat. Each of these groups had principal wards, with full nursing complement, for more serious cases, and overflow wards for convalescent cases as those needing less attention.

As the time passed the margin of beds available became more limited and maneuvering room became reduced at times to almost zero. This made necessary the intermingling of cases more than was desirable, but so far as known no harm came from this resort.

When the influenza epidemic arrived the question of beds became acute, the medical division taking over many of the surgical wards for cases urgently needing beds and the best nursing facilities. Available beds were then gained by rapidly invaliding proper cases from the service and liberal granting of leave to those convalescent, able to travel, and needing nothing but time for recovery.

A urological department was developed in June. A separate examining and treatment room was provided, and cases from all departments of the hospital were cared for under an experienced medical officer. When found operative, cases were transferred to a clean or pus surgical ward.

The suppurative-pleurisy question proved one of the most serious of the year, and the best treatment is not yet settled for a number of reasons. The outlook varies from many circumstances, depending upon the disease of which the empyema is a complication, presence of associated diseases such as tuberculosis, duration of disease when patient is received in hospital, causative organism, presence or absence of collapsed lung, and presence of complications of which pericarditis was common in the early part of the year in cases of measles, broncho-pneumonia, empyema, and absent during the later months in influenza and the lobar-pneumonia empyemas.

A few empyema deaths occurred in the early toxic stage when the original broncho-pneumonia failed to clear up, but the majority were due to complications or intercurrent diseases such as purulent pericarditis, lobar or bronco-pneumonia, or the rapid development of tuberculosis. In these cases the diagnosis was not changed to the superimposed or complicating disease, as it was thought that this would falsify statistics. If a policy of changing diagnoses were carried out to show the terminal affection, the death rate of empyema would appear very low or could be made to appear almost nothing.

Three cases of double suppurative pleurisy were treated with two deaths. One case apparently completely recovered and was returned to duty.

It was observed in this hospital six years ago that it was inadvisable to do rib resection and drainage in cases that were toxic, ran continuous high fever and had not passed the crisis of their pneumonia. In these cases if much fluid is present it seemed advisable to keep it reduced by aspiration until the patient had produced some immunity to his infection. It was also observed, when the laboratory reported a thin fluid to be pus, that better results were obtained by aspirating as indicated until the pleural secretions became purulent in general appearance.

Experience during the past two years has added to the opinion that if the patient with suppurative pleurisy shows improvement from aspiration of the pleural exudate, drainage by operation can, with benefit, be postponed for a time. Cases treated this way show less tendency to collapse of the lung, at operation frequently show only a small abscess cavity, and time of convalescence is reduced. Three cases treated by aspiration recovered without operation.

During the past two months empyemas have been drained without rib resection by inserting a number 28 cannula, passing a tube inside the cannula and withdrawing the cannula. The subsequent treatment consists of aspirating the pleural contents frequently and injecting Dakin's solution. The tube is clamped between treatments.

Fifteen cases have been treated with this method with no deaths. All cases are doing well, and one has apparently completely recovered. It is too early to derive conclusions, however.

During the year there were 1,385 operations performed. These do not include opening of small abscesses, suture of minor wounds, etc.

Some of the more common operations were:

Appendectomies.....	201
Suppurative pleurisy.....	130
Hernia inguinal.....	123
Hemorrhoids.....	111
Mastoidectomies.....	61

There were two deaths following appendix operations, both of these being bad pus cases on admission and later developing sub-phrenic abscess.

There were 29 deaths from suppurative pleurisy, nearly all of these occurring during the early part of the year. Many of these cases were admitted in an extremely grave condition from ships which had been long at sea. The deaths were, in many cases due to complications, such as lobar pneumonia of the opposite side, suppurative pericarditis, and tuberculosis.



One death from mastoiditis occurred, and this on the day of admission. The patient had been in another hospital under treatment for otitis media. On admission, mastoiditis was evident, but overshadowed by symptoms of meningitis. Spinal puncture revealed a turbid spinal fluid loaded with streptococci.

There was no mortality in the cases of hernia and hemorrhoids.

Varicoceles presented at times an annoying condition, and it was evident that many men used their varicoceles as a means of getting away from their ships and into the hospital. Here they would request transfer, even across the continent, for operation at home, and, when they found they could not get their wish for so simple a condition, they refused operation. It is thought that most varicoceles are harmless, and cause no trouble, but many men are willing to be operated on for this condition in order to get to a hospital.

When men report at sick call on board ship complaining of symptoms referable to varicocele, if operation is offered on the ship, the great majority will say they do not wish operation. When these men are sent to a hospital much time is lost in transferring them, waiting for necessary pay accounts and records, when they are ready for duty, and frequently a month or more elapses before they are back on board ship and very often they go to a ship other than the one from which they came. If operated on aboard ship, they usually are ready for duty in 10 days, and go to their familiar duties on their own ship. Operating on varicoceles on the ships eliminates entirely those who refuse operation and those who use a slight ailment to gain their own purpose at public expense.

In the genito-urinary department 130 cystoscopies and urethrocopies were done. Nineteen operations were performed with but one fatality. The officer in charge of the genito-urinary cases recommends a special building or set of buildings with a bed capacity of 350 and provided with its own mess hall, diet kitchen, laboratory, etc., to make possible adequate separation, classification, and treatment in this class of patients.

The eye department handled 1,378 cases, of which 768 were treated for errors of refraction. The major operations numbered 9, the minor operations 51.

The nose and throat specialist reports a total of 460 operations, of which 333 were for tonsils or adenoids or both and 88 were submucous resections. There was but one case of postoperative hemorrhage. Three tonsillectomies were done on diphtheria carriers to rid them of the infective organism, and this was accomplished by the tenth day.

In the dental department the treatments and operations totaled 2,705.

The first steps in the important work of reconstruction were taken at this hospital by prompt surgical attention to wounds, massage for stiff joints and tendons, and the use of temporary devices preliminary to the fitting of artificial legs. It is believed that not a few of the cases of impaired function of the extremities were due to the practice of excising devitalized tissues after injury.

During the year three men have been constantly employed in the laboratory and their various tests and examinations numbered 21,500.

## Requisitions for the fiscal year:

Open purchase .....	198
Stub requisitions .....	481

## Expenditures, fiscal year 1918:

Hospital maintenance .....	\$580, 183. 31
Provisions .....	315, 919. 06
Medical supplies .....	71, 797. 28
Ambulance service .....	17, 466. 56
Power house .....	32, 461. 27
Culinary department .....	28, 012. 54
Laundry .....	11, 537. 87
Care of grounds and buildings .....	38, 357. 40
Civil establishments .....	39, 043. 31
New construction .....	304, 964. 86

1, 439, 743. 46

The above expenditures were drawn from the following appropriations:

Naval hospital fund .....	\$252, 056. 01
Medical Department, United States Navy .....	\$94, 036. 27
Contingent, medicine and surgery .....	\$72, 081. 12
Bringing home remains .....	\$21, 741. 33
Specific appropriation .....	\$559, 221. 06

Total expenditure .....	\$999, 135. 79
Total number of subsisted days for fiscal year .....	492, 785
Average cost per diem for maintenance .....	\$1. 177
Average cost per diem for subsistence .....	\$0. 6411

During the calendar year 1918 the commissary department has served an average of 35,000 rations a month. The ration cost, due to the increased cost of provisions, has risen from \$0.5554 in June to \$0.8117 in November, but by centralizing stores and issuing all ward diets from one galley, a great saving has been accomplished.

The cafeteria method inaugurated in mess halls has proved a decided success, has shortened the time and labor necessary in serving meals, and while permitting each man to obtain a full ration, has eliminated waste to a marked degree.

Vacuum food and liquid containers are being successfully used to convey all diets to bungalows and to the contagious camp and assure a hot ration for each patient, with an added sanitary value.

While striving to keep the ration cost within reasonable bounds, the chief aim of this department has been to supply all patients at all times with full rations of wholesome food, the best that can be furnished in the market.

The present cold-storage facilities are inadequate and will barely hold one day's supply of fresh meat, eggs, milk, etc., and with the increased complement of the hospital, a larger cold storage is imperative. At present the contractors are relied upon to furnish the needs of the hospital daily, and great inconvenience is caused when they are unable to supply each day the provisions needed.

One room in the cold storage is, through necessity, being used for the storage of ice, thereby curtailing the room needed for provisions, and an ice-storage room is very greatly needed.

The aim of the dietetics department of this hospital is primarily to provide a well-balanced, appetizing diet, also to avoid routine diets, to regulate the nourishments, thereby insuring the proper amount and kind, and to eliminate waste.

These are accomplished by supervision of preparation and cooking of all foodstuffs by dietitians, and by outlining diet sheets each week for the succeeding week. These diet sheets include the following classes:

1. Full diet—for hospital staff and convalescent patients able to go to mess halls.
2. Light diets—for bed patients fed in wards.
3. Soft diets—for bed patients fed in wards.
4. Liquid diets—for bed patients fed in wards.
5. Special diets:
  - (a) Diet in disorders of nutrition.
  - (b) Diet in fevers and infectious diseases.
  - (c) Diet in disorders of digestive tract.

The chaplain reports that the staff and patients of this hospital subscribed \$10,000 to the Red Cross fund, \$30,000 to the third Liberty loan, \$41,000 to the fourth Liberty loan, and took out \$4,370,000 in war-risk insurance.

*Parris Island, S. C.*—Five buildings have been added to the hospital establishment and work is now proceeding on the completion of four more. The two new ward-buildings are about three-fourths completed and should be ready for occupancy within the next six weeks. Beds, chairs, and other equipment are already here and the wards may be occupied as soon as finished. When these buildings are completed they will provide accommodations for over 250 patients, and if the second story of the porches is completed this will increase accommodations by about 50 or 60 more. There are now about 140 patients being cared for at this hospital.

Besides the naval hospital the medical department maintains six sick bays, accommodating from 4 to 60 patients each and capable of expansion, and two dressing stations.

During the influenza epidemic barrack buildings were taken over until more than 300 patients were cared for.

Since April, 1917, the old quarantine station has been used as a receiving barracks for recruits or applicants arriving on the station. Its normal capacity was 800 men, but many times this year over 1,500 have been taken care of in crowded barracks and in tents. Recent construction has provided three sets of two-story barracks, with mess halls, galley, and latrines, and the total capacity of this unit is now 1,200 men. Men stay here only long enough to be examined, vaccinated, sworn in, outfitted, and formed into companies, when they go to the recruit camp for quarantine. The applicants for enlistment have been carefully gone over. All those with any skin, venereal, or contagious disease are immediately isolated, and by great care and watchfulness on the part of the medical officers no epidemic, except influenza, has come through this unit.

Forty-two new sets of two-story barracks have been constructed. These are of the latest type of cantonment building. Each set is complete with mess hall, galley, and latrines, and seems to be very satisfactory. Twenty-three sets of officers' quarters are being built near the training camp. These have been greatly needed, since many officers and their families have lived in tents or gone back and forth to Beaufort.

*Pearl Harbor, Hawaii.*—No special ward or building has yet been provided for the care of contagious cases. Such a building is urgently needed. The genito-urinary ward has been used for this purpose and tents with wooden floors have furnished facilities where

different communicable diseases required isolation. Tents are not satisfactory for this purpose, however, as they become excessively hot during the day in summer; food must be transported some distance to the patients; the nurse is confronted with the unpleasant task of disposing of night soil at a toilet some distance away, a toilet in use by other patients; the lack of running water makes it difficult to carry out the details of aseptic nursing.

The subsistence problem of the hospital is practically unchanged from that reported last year, and probably can not be adequately solved until the new subsistence building is constructed. The present dining rooms are too small to properly accommodate ambulant patients, hospital corpsmen, and civil employees. The kitchen and dining rooms have not been planned for the cafeteria system of serving and the arrangement in the kitchen is such as to cause much unnecessary running to and fro on the part of cooks and messmen.

Including supernumeraries, 515 patients have been admitted or readmitted to the hospital during the year, with a total of 7,821 sick days. Of this number 28 were taken up from last year and 17 continued to next year; 425 patients have been discharged to duty; 36 have been discharged for change of diagnosis; 32 have been transferred for special treatment or for disability discharge; 1 has been invalided from the service; and 4 have died.

*Pensacola, Fla.*—The condition of all the hospital wards and buildings has been satisfactory. The construction mentioned as unfinished in last year's report and completed during this period was as follows: Isolation ward; renovation of the chief pharmacist mates' quarters, with installation of a toilet and bath room; animal house; cement floor and enameled sink for morgue; gate house and all gates and concrete roadway from the south gate into the grounds.

The influenza epidemic was severe in this locality. Between the dates of September 11 and November 26, 930 cases were admitted to the hospital, of whom 77 contracted pneumonia. Twenty-one of these pneumonias died. When the epidemic became so severe in Pensacola as to get beyond the city authorities 26 of our hospital corpsmen volunteered to work there when off duty at the hospital and gave invaluable assistance caring for the sick and destitute.

*Portsmouth, N. H.*—The great expansion of the naval prison at this station and the arrival among general court-martial prisoners of a very large number of mental defectives which were detected by the psychiatrist of the station soon showed the need of a specially equipped psychopathic ward for their detention and temporary care. The urgency of this matter was represented to the department and favorable action recommended. The plan was approved. Two one-story buildings are under construction at the present time, a requisition for suitable equipment has been submitted, and when the two wards are completed, which it is hoped will be the case in the early spring, it is felt that much good can be accomplished for the unfortunate ones for whom they are intended. Due to the fact that the new ward buildings were ready for occupancy almost from the beginning of spring and, certainly, when the number of patients began to rapidly increase, the tent camp was only put into use during the summer and fall season for the accommodation of overflow convalescents and tuberculosis suspects. The scarcity of labor which prevailed universally also affected this institution. It was impossible to secure the services of cooks and mess attendants to replace those

drafted or discharged. To overcome this serious condition of affairs enlisted personnel was supplied this hospital by order of the commandant, first naval district.

*Puget Sound, Wash.*—When the armistice was signed there were approximately 5,000 enlisted men under training at the training station, Puget Sound; 5,000 at the training station, Seattle; 500 at the receiving ship; 500 marines; and several hundred men attached to the ships of the patrol service, etc., and in addition to this there were in excess of 6,000 civilians, employees of the navy yard, ammunition depots, etc., who avail themselves of the hospital owing to the fact that there is no civilian hospital in Bremerton. The hospital has coped with every emergency.

During September a very severe epidemic of influenza broke out on the station. The disease was brought here by a draft of 1,000 men from the navy yard, Philadelphia. These men arrived here in very poor physical condition and the majority of the deaths from influenza was in this draft. One medical officer, one nurse (female), and two hospital corpsmen died during the epidemic. The type of disease as seen at this hospital was a general streptococcic septicemia with marked pulmonary involvement, but by no means limited to lungs and pleura as was shown by pathological conditions of liver, gall bladder, spleen, and kidneys. This view was substantiated by the finding of streptococci in all blood cultures as well as from cultures from all organs examined. No influenza bacilli were found in these cases. Later antistreptococcic serum was given to everyone at the hospital and the laboratory furnished a large quantity to the yard and to the towns of Bremerton and Charleston. The sudden influx of so many very sick patients demanding constant attention day and night taxed our nursing force to the utmost. The hospital, all pavilion wards, and 48 tents were in commission.

Every opportunity has been given the newly enrolled medical officers on this station to become familiar with routine naval procedures, administration of the medical department and other duties connected with the Medical Department of the Navy. The younger officers coming direct from the medical school were given, in addition to routine hospital work, an opportunity to become familiar with the examination of recruits, minor surgery, etc. They have been assigned work in the medical, surgical, venereal and nose and throat wards, the operating and X-ray rooms and laboratory in rotation and received instruction in hospital corps drill as well as the simpler military drills, marching formations, salutes, etc. They have taken much interest in the work and are now considered competent for general or independent duties. Until the influenza outbreak in September there were 7 regular Navy nurses and 13 nurses of the United States Naval Reserve Force on duty. At this time in response to a request for more nurses, the department immediately ordered more nurses from Seattle, Portland, and other surrounding cities. Some of these nurses were already enrolled in the Naval Reserve Force and others were loaned through the courtesy of the Red Cross and were placed on the civilian pay roll. The services of the latter were dispensed with as soon as practicable. The nurses have rendered excellent service which has been highly appreciated. Providing suitable quarters for nurses has been a serious problem. At present quarters are located on the second floor of a building in Charlestown, with a billiard hall on the first floor. Besides being a

considerable distance from the hospital the building is cheaply constructed and poorly adapted for the purpose not to mention the almost exorbitant rental price. The hospital is badly in need of a laundry. It is difficult to get laundry done at any price and more difficult still to get good work and to have it done on time. Our laundry bill for the year has been \$5,842.71, and it is recommended that a laundry building be provided for the hospital during the coming year.

The total admissions and readmissions for the year were 2,937; discharges to duty, 2,234; invalided, 12; died, 89 (died from epidemic of influenza, 77); remaining at end of year, 218; total sick days, 66,327.

The total number of rations for the year, 97,917; average rations per month, 8,126; and average cost of ration, .617.

*St. Thomas, Virgin Islands.*—The hospital building is old, having been constructed in 1878. Since renting the building considerable work has been done to render it ant proof, rat proof, and fly proof. As a precaution against ants, which are so prevalent in the Tropics and constitute such a nuisance, it has been found that oiling the floors about once a week with crude oil is an excellent preventive. Some of the hospital timbers are already extensively ant eaten. The oiling has rendered the floors far more satisfactory than they were in the beginning, though the black color is not at first attractive to the eye. The walls of the wards are calcimined. The hospital furniture is modern and sanitary.

The operating room of the hospital is quite small, but is well ventilated and well lighted and is sufficiently well appointed to permit such surgical work as would ordinarily be required. During the calendar year just closed, there have been 114 major and minor surgical operations performed in the hospital.

Heating for the sterilization of surgical dressings and laboratory media and apparatus is accomplished by means of kerosene and a Primus lamp. St. Thomas has no gas system and this makes sterilization very much more difficult. Under the circumstances the system in use is the best that can be devised. The absence of a gas supply or of some arrangement for giving a blue flame very much handicaps surgical and laboratory work in the hospital and it would be desirable to put in a plant for supplying gas if the government owned the hospital. The present methods must suffice until such time as it may be decided to build a naval hospital here.

The laboratory while quite small has nevertheless accomplished a considerable amount of work. During the year 2,921 examinations of various kinds were done by the laboratory force. Most of these examinations had to do with microscopic, serum, or vaccine work. The laboratory is not equipped to do chemical determinations except those of the ordinary clinical type. A considerable part of the laboratory work for the civil population of the islands has been done here. Two outstanding features of this were the Wassermann serum tests and the manufacture of typhoid prophylactic vaccine for the civilian population. There have been 960 Wassermann reactions carried out. Three hundred and forty of these reactions were done upon service men and 5.3 per cent were positive. Of the 620 natives tested 34.7 per cent were positive. It is thought that both of these figures err on the side of being an understatement of facts.

As to the typhoid vaccine manufactured, enough of this prophylactic had been made to immunize all civilians between 5 and 45 years who had not suffered from typhoid fever. Approximately 18,000 immunizations were carried out by the medical officers assigned to civilian work. The cost of the vaccine was between \$40 and \$45. There were no untoward results.

The training schools for native women, in connection with the civilian hospitals, were established a year ago last November. This feature of the work has been quite encouraging. The pupil nurses have done very well, the majority of them being interested in their work and anxious to learn. During the coming year it is planned to train some of the pupils to go out as visiting nurses and to do midwifery.

The naval dental office, situated about a quarter of a mile from the hospital, was opened for the first time January 14, 1918, and up to December 31, 1918, there were 1,906 visits to the dental surgeon stationed here. The demand for dental treatment at this station has been so great during the past year that the dental officer had to give a great number of his patients only temporary relief on account of lack of time to give permanent treatment. He has not only to treat the marines and sailors stationed ashore at St. Thomas and men from the station ship, but also sailors from visiting fleets. In addition he has to make occasional trips to Santa Cruz and, owing to poor facilities for traveling and the difficulties experienced in establishing new offices, time is thus consumed that is needed and should be given to the men of St. Thomas.

*Philadelphia, Pa.*—The work done at this hospital throughout the war period was of the greatest importance and value. The hospital was the training center for a large number of medical and dental officers, nurses and hospital corpsmen of both regular and reserve forces. The extremely accurate investigations carried on by the staff on the subject of influenza are referred to *in extenso* elsewhere in this report. During the pandemic the bed capacity of the hospital, with its auxiliary and affiliated civilian hospitals, reached 3,000. Throughout the pandemic the civilian hospital facilities were used for the usual type of cases and the hospital proper cared for all influenza patients, utilizing, besides its own resources, 250 beds in the Municipal Hospital and 200 in the Children's Hospital. In the Methodist Hospital 50 beds were permanently retained for Navy use and paid for. In all other institutions beds were paid for only as required. Convalescent patients were sent to St. Francis Home; diphtheria and scarlet fever cases to the Municipal Hospital. As the epidemic subsided tents in the hospital grounds were also used. In the Municipal Hospital patients were attended and nursed by medical officers and nurses of the Navy, the subsistence being supplied by the hospital. Sick officers were sent to the Stomach Hospital.

A ward building of stucco and terra cotta blocks housing 300 patients was completed, and also a laundry and power house. On the signing of the armistice the contemplated plans for a recreation building, quarters for sick officers, nursing staff, and an observation ward which would have provided space for 66 additional beds, were abandoned on the ground of economy, though these additions are highly desirable.

During the calendar year 1918 the professional staff numbered 59, the nurses 130, the hospital corpsmen 90. The patients treated were 4,324, of which 2,848 were quartered in 11 civilian institutions. The operations performed numbered 158, not including 82 in the eye, ear, nose, and throat department, and 7 major operations on the kidney, 50 cystoscopies, and 865 administrations of salvarsan. The laboratory examinations numbered 8,500 and there were 960 X-ray plates made. Typhoid inoculations numbered 744 and cowpox vaccinations 288.

#### WAR STATIONS ABROAD.

*United States Naval Air Station, Arcachon, France.*—The station was located on Cap Ferret. This is a narrow point composed entirely of sand and quite thickly covered with a growth of pine trees. Use was made of permanent buildings of concrete blocks built by the French under contract. When the first detail of Navy personnel arrived February 19, 1918, it was temporarily quartered in tents. At the time of our arrival there was one well about 28 feet deep within the confines of the station. Before men arrived February 6, 1918, a specimen from this well had been sent to the laboratory at Talence Hospital in Bordeaux for analysis. A bacteriological examination was made and no intestinal bacteria found. There were some nonpathogenic organisms, but the report stated that the water was potable. The water supply was satisfactory until July. In the interim we had received 100 men. The contractor had caused two other wells to be sunk in other parts of the station, and this water was used to some extent by the men.

On July 5, 1918, an epidemic of gastro-enteritis broke out. The symptoms were colicky pains and profuse diarrhea. Specimens of water from three wells which had been used by the men were examined. The water from the original was still potable, but that from the more recent and more shallow wells contained "colon bacillus" in large numbers. As soon as the first cases of sickness appeared the water was suspected of being the source of infection. Water coolers were placed in the mess halls, sick bay, barracks, and workshops. The water in them was boiled, cooled, and then treated with chlorinated lime. Men were instructed to use no other water for drinking purposes. Water used for cooking purposes was boiled before use. From the time the infection began, no water from any well except the original, which had never been contaminated, was used. The epidemic died out two weeks after its inception and there was no recurrence. There was a total of 18 cases. It was realized that our water supply as it then stood would continue to be a source of menace to the health of our station, but it could not be improved.

There was an artesian well 340 feet deep belonging to private owners situated 400 yards from the station. Arrangements were made to get our drinking water from that source. Examination of this water showed it to be of high quality. A tank to be used as a reservoir was set up in the center of the station. Pipe was laid from the well to this tank, and a concrete collecting tank was built by the well to take the overflow. With a pump installed at the collecting tank we were able to supply from seven to ten thousand gallons at the station each 24 hours. Pipes were laid to all the inhabited buildings on the station and secured an accessible and plentiful supply of good water for drinking purposes and cooking. This installation was completed and in working order September 1, 1918. From February 19, 1918, to August 25, 1918, we were forced to utilize boarded latrines situated as far from the wells as the confines of the station permitted. These



consisted of boarded pits extending 5 feet into the sand and covered with a movable structure of light boards. The excreta were covered twice a week with sand to a depth of 3 or 4 inches. When the contents of the pit were 2 feet in depth the pit was covered and a new one dug. In this way we had little trouble with flies and none at all with offensive odors. Later a system of septic tanks and flushing was connected with a sewer leading into the bay. The sewer, however, was not well laid, and the resultant drainage was not very good. The fall leading from the sick bay, the last building supplied by the sewer, was not great enough. The head in the sick bay was constantly permeated with a very strong odor of sewer gas. The other latrines were affected in the same manner, but those nearer the sewer outlet to a less extent. It may be that the septic tanks were not large enough to permit of a sufficient dilution, but it seems more logical to conclude that the fall of the sewer was not properly utilized.

On July 5, 1918, our hospital building was sufficiently near completion to admit of occupation. We had a large ward accommodating 16 beds, an officers' ward of 3 beds, and a contagious ward of 2 beds. There were also laboratory, office, operating room with tile floor and excellent illumination, dressing room, heads, and a bathroom with tub and shower in the rear of the building. Supplies sufficient to equip the hospital in a very satisfactory working manner were sent to us as rapidly as we had need of them.

*United States Naval Aviation Detachment, Bolsena, Italy.*—The detachment comprising 4 officers and 28 men, arrived at Bolsena on February 19, 1918. The detachment was to be trained in the use of Italian hydroaeroplanes at the aviation school of the Royal Italian Navy, Bolsena. The men of the American detachment were assigned to barracks that line the avenue which leads southward from the village gates to the beach. This row of barracks begins at the very lake shore, and extends to within 200 meters of the village. The officers were assigned to quarters in a three-story dwelling house on the opposite side of the avenue and nearer the village.

The barracks, all of uniform dimension and construction, were 16 by 5 by 5 meters (this height being that of the peak) and divided into four rooms each. They were well built with double walls and set on stone piles 12 inches above the ground. The tar-paper roofing being in constant need of repairs, considerable trouble was experienced with leaky roofs, especially during the spring and fall rains. The two end-rooms in each barrack had two windows each, the remainder only one, but the ventilation was sufficient in all cases.

Two men were assigned to each room giving per capita air space of about 1,000 cubic feet. The barracks were electrically lighted but it was not until the late autumn that any provision was made for heating them. Then in the first week of November a kerosene-burning stove for each room and a wood-burning stove for each barrack was provided. The bedding furnished by the Italian Government was sufficient but once, for a few days, there was delay in the delivery of an extra supply suddenly needed.

Both officers and men took their meals at the Italian Naval Club. The food was unsatisfactory because wanting in quality and quantity and because of its Italian preparation to which our men were not able to accustom themselves. Very little American food was received. The original draft carried sugar, jam, and bacon which

with careful husbanding lasted five weeks. In July a consignment of sugar, bacon, ham, butter, white flour, and jam was received, and this lasted about seven weeks. A third shipment of bacon, ham, butter, milk, tea, and sugar in very small quantities arrived the last of November. This was exhausted in about three weeks.

One death occurred, the result of an aeroplane fall, the machine falling into the lake at the point of its greatest depth. Very few injuries were encountered, and all were of a minor character, such as bruises, superficial cuts, sprains, etc. Throughout the early months of the detachment's stay in Bolsena and on the arrival of new groups of men, and especially through the hottest part of the summer, gastro-intestinal disturbances were numerous and persistent.

While it is certain that the nature of the food played a very marked predisposing part in this illness, the clinical picture was that of influenza of a gastro-intestinal type. In almost every case there was prolonged, profuse diarrhea, with a watery, very foul-smelling discharge lasting three to six days, accompanied by intestinal cramps of varying severity. Vomiting and often headache were common symptoms. In a great majority of cases "aches and pains in the joints" were complained of, while frequently there was general muscular tenderness. The entire abdominal region was tender to touch. Sore throat and bronchitis often occurred, and in several instances pleurisy developed during convalescence.

During actual flying a medical officer and a pharmacist's mate with all essential first-aid material were always stationed on the beach, the former being relieved during meal hours by the Italian doctor. Up to the first week of July, in lieu of a speed boat to take the doctor to the scene of the accident, it was necessary to proceed in an aeroplane and to convey the injured to shore in the same manner. About this date a *hydroglisseur* arrived and was subsequently used for this purpose.

The sanitation of the grounds of the Italian camp was put in the hands of the American doctor in June. A squad of six men was kept busy cutting weeds, clearing up rubbish, and keeping the grounds free from filthy deposits of all kinds.

*Naval port officer, Bordeaux, France.*—Hospital facilities at the present time are unusually good. The United States Naval Dispensary, Bassens (7 miles distant) is prepared to handle all ordinary medical and surgical cases. In addition there are three United States Army base hospitals within a radius of 10 miles.

The United States naval port officer, Bordeaux, has charge of all movements in the Gironde River of United States ships and of those whose cargo is consigned to any American organization in Europe. Vast quantities of supplies are brought in here and since the signing of the armistice large numbers of troops have taken return passage from here, especially the sick and wounded. It will thus be apparent that liaison duty with the United States Army is a most important factor, both in dispatching ships and in handling the returning troops. At present every effort is made to return the sick and wounded and rapid strides were made during the month of December. Lieutenant Commander A. J. Toulon, Medical Corps, United States Navy, is medical liaison officer at this port.

Until October 21, 1918, all enlisted men attached to this office were put upon subsistence but as the number was constantly increasing the

need of quarters was more apparent. As a result the United States naval barracks came into existence. This barrack is a remodeled château situated about 1 mile from the office.

The barrack is not large enough to accommodate the present personnel, necessitating the erection of additional temporary buildings to the rear. A new portable barrack is now under construction and will be sufficiently large to meet all demands. The new barrack is located in a public park, within a quarter of a mile of the office and much handier for the men. The new barrack will be fully equipped with sanitary toilets and all necessary plumbing and proper sewer connection.

In spite of the crowded condition the sick list has been very slight, 34 cases to date. There has been no serious illness with the exception of two influenza pneumonia cases, one of which subsequently died at Bassens Dispensary. Of epidemic diseases there have been 1 case of mumps and 11 cases of influenza, all mild with the above exceptions. A good prophylaxis station is maintained and venereal diseases have been limited to 2 cases of syphilis and 11 cases of gonococcus infection of the urethra.

*Dunkirk Seaplane Station.*—Considering the climate and the exposure to frequent night bomb raids, the general health of the men has been very good. There have been two outbreaks of influenza, the first occurring last spring, and the other during October. In the former about 90 per cent of the crew was affected at some time during the epidemic but with no fatalities. The more recent one was less serious and there were fewer cases. Venereal prophylaxis is provided in the sick bay and venereal disease has been low throughout the year. Scabies became a problem when the station was first established, as it was necessary to transfer men who were affected, but these cases were isolated in a special barracks and given persistent treatment until cured. At present there are a few cases, contracted during the occupation of Zeebrugge, shortly after the departure of the Germans, but they are mild and well on the road to recovery.

For the past nine months five small rooms in one of the requisitioned buildings on the station have been used for the sick bay. Hospital facilities near the base are excellent. Emergency cases have been sent to French hospitals—the Lamartine, located in Dunkirk and most convenient to the station, and the Hôpital Rosendael, which is about 3 kilometers away. Cases other than these have been transported to the Queen Alexandra's Hospital at Petite Synthe, a distance of 8 kilometers away, which was to be preferred on account of the English speaking staff. Many and marked were the courtesies received by our men and the medical department at Dunkirk from both the French and the English. They have not only cared for the sick and injured, but in the case of the Queen Alexandra have allowed us the services of a very excellent dentist who performed all the work necessary for the men on this station. The Rosendael Hospital very kindly did all our laboratory work, such as Wassermann, sputum, and urine examinations, for which we had no facilities. Beds in the French venereal hospital were also placed at our disposal, but it was unnecessary to send any venereal cases to the hospital. The nearest United States naval hospital is at London and when possible

injured and operative cases are sent there, being evacuated via general hospital (English) No. 30 at Calais to Dover and London.

Immediately after the evacuation of the Belgian coast by the Germans, the station was moved to the Zeebrugge mole, where it was established in buildings previously occupied by the Germans for the same purpose. All barracks and other rooms as well as serviceable equipment were thoroughly fumigated before being used, but in spite of precautions a few cases of itch developed. After the initial cleaning and fumigating, sanitary conditions, with the exception of the water supply, were very favorable, and in many respects even better than at Dunkirk. The climate was apparently colder although not so damp. The site was artificially built of concrete, high and exposed to the wind, thereby making it dry under foot, freely supplied with fresh air, well above sea level and well drained and free from the undesirable conditions produced by the low made land and adjacent dump at Dunkirk. The barracks were of brick, on a high foundation with a high ceiling and ample light and were heated by stoves, the fuel for which consisted of an abundant supply of old lumber. Officers' quarters were in the second story of the same building, and four rooms at the end of the building but apart from the men, were used by the medical department for sick bay, dispensary, office and hospital corpsmen's quarters. The galley was the same as that used by the Germans, and the food was sent up from Dunkirk. The toilets used were those already installed in the building, although it was necessary to carry water and flush them by hand, the water supply having been cut. Samples of water for drinking and cooking purposes were taken from both Zeebrugge and Blankenberghe and tested, the former containing large quantities of typhoid and colon bacilli and the latter not so many. Only the latter was used and had to be hauled in tanks by auto carried across a suspension footbridge spanning the destroyed part of the mole and thence to the barracks on pushcarts. Here it was twice boiled for 20 minutes at intervals of an hour or more before being issued for use. During the two weeks' occupation there was only one case of tonsillitis and one case of rheumatic fever, the latter being sent to the Princess Elizabeth Hospital at Blankenberghe. Several minor injuries resulted from the explosions of time charges left by the Germans. Owing to the armistice and the need of space on the mole for engineering units, the entire station was returned to its former and present location at Dunkirk.

*United States Naval Aviation Repair Base, Eastleigh, England.*—The complement of officers and men varied from 10 officers and 300 men to 90 officers and 2,400 men. The latter number was reached about November 20, 1918, and was considered the normal complement required to perform the duties of this station. It was commissioned on July 28, 1918, and in three months' time it was at the height of construction and only then in condition to carry out its duty in assembling and repairing fighting machines in an efficient manner. The men were on foreign soil for the first time and consequently were not acclimated. They were not provided with suitable clothing to meet the vicissitudes of the weather, had no proper rain clothing or boots, and on many occasions slept in wet clothing. It can be stated that it rained for weeks at a time, and consequently the men had no chance to dry their clothes.

It is to be noted that venereal diseases were practically negligible among the men of this station, although the station was only about 5 miles from Southampton, a large seaport, with a population of 120,000. Over 7,000,000 troops passed through this port since the beginning of the war. There were numerous camps in the immediate vicinity of Southampton, especially noteworthy being the large British and American rest camp, where thousands of troops were quartered. It was anticipated that venereal disease would be quite prevalent. Such, however, was not the case, the number of venereal diseases among our men being small. The prophylactic room was open until a late hour at night for the use of men returning from liberty, prophylaxis being compulsory and a record being made of all cases treated. Liberty was granted every other night from 5.45 p. m. to 11 p. m., the station liberty being divided into starboard and port watches, no overnight liberty being granted. It is certain that the limited liberty and compulsory prophylaxis had a distinct effect in restricting to a low number the venereal cases at this station. There were no public houses of prostitution known in or about Southampton. Enlisted men did not have much opportunity to frequent saloons, as intoxicating liquors were only sold between the hours of 12.30 and 2.30 p. m. and from 6.30 to 9 p. m., and then only a limited supply could be obtained. It may be said therefore that the low rate of venereal cases was due to (1) lack of overnight liberty; (2) absence of drunkenness; (3) compulsory prophylaxis. This station was deemed a safe base, secure from attack by enemy machines, an important consideration, as at the time of its selection the Germans were making their last main offensive with marked success and no one knew but what at any minute they might break through our lines. It was for this apparent reason that this station was bought from the English to be used as a base 175 miles from where our machines were actually participating in combat. Our machines were engaged in bombing expeditions upon the German lines, and on several occasions were engaged with enemy aeroplanes.

It is rather remarkable that no accidental injuries occurred among the men who were engaged in this work, due probably, to the fact that a "safety" engineer, a line officer, was constantly on duty in the hangars, making daily tests of all parts. No injuries were incurred by any of the officers or men engaged in actual flying. One naval aviator, detailed as flight officer, tested all the machines before their departure for France. There were but three minor accidents and the machines were only damaged to a small extent. The sanitary conditions about the hangars, including heating, lighting, and ventilation, were good, but where the temporary testing stands were located the men engaged in this work were often without other shelter than a roof overhead, and exposed to rain without proper apparel and boots.

*United States Naval Air Station Fromentine, Vendée, France.*—The station itself occupied 47½ acres. It was surrounded by water on three sides, and a wire fence separated it from the rest of the island. A main road running through the middle of the station divided it into halves. Barracks and officers' quarters were located on the right side of the road, while hangars, shops, and administration offices were located on the left. All buildings, except the hangars, three

French buildings, and Y. M. C. A. hut, were "Dixie" portable buildings, well constructed and very comfortable.

These are fabricated buildings measuring 20 by 108 feet, and coming in panels 20 by 5 feet. They were supported by a foundation of log piling and were raised from the earth about 2 feet. Alternate panels contained a hinged window, and at each end there was a door. These buildings could be constructed very rapidly, a dozen men being able to put one up in four or five hours after the piles had been placed. The floors were made of soft pine, and after swabbing down retained the moisture for too long a time. This was remedied in a few of the buildings by treating them with a mixture of one part linseed oil to two parts of kerosene, which gives a nice surface, easily kept clean.

The seven barracks were well lighted and adequately ventilated. Each one contained a stove which furnished enough heat for the 48 occupants. The allowance of air space for each man was 445 cubic feet. The dispensary building measured 107 by 20 feet. It was divided into six rooms—two wards, a quiet room, an operating room, a dispensary and storeroom, and an office—which faced a hall extending from one room to another. The walls placed at each end of the building measured 20 by 30 feet and 20 by 20 feet, respectively. The quiet room was 10 by 15 feet. This furnished 1,150 square feet of the building for ward purposes. The dispensary was located in the center, with entrances into the operating room and office on either side of the dispensary. It was divided across the middle lengthwise by a partition and a counter over which drugs were dispensed. There was sufficient shelf and locker space to store all supplies in the dispensary. The operating room was 10 feet wide and contained two windows and a skylight. It served also as a dental operating room and was provided with running water. A concrete ship's head was located between the operating room and ward A. One end of this was partitioned off and used as a venereal head.

On February 7, 1918, when the first medical officer arrived there had been no construction work done and there were no enlisted men on the site. As soon as men began to report for duty construction work was begun. A galley and mess hall were constructed at once. They were built of French lumber and served their purpose well. Latrines were dug on the beach and a head built on the edge of the dock. At first the enlisted personnel lived in a hired château in Fromentine, but on March 13 when a second draft of men arrived tents were erected and occupied on the island. These tents were well arranged, board floors were placed in each one, and they were supplied with wash stands and bowls. The tents were circular, 12 feet in diameter, and could accommodate four men each. Frames were made upon which hammocks were stretched. These made very comfortable beds and they were sanitary. The canvas was frequently scrubbed and the bedding aired. The first dispensary and sick bay were located on the mainland in the château which the station had leased. The medical officer's office was located in the building occupied by the commanding and executive officers. Bedding and linen were rented at first, as no supplies had been received. It was found necessary for the medical officer to obtain supplies by order at Bordeaux, which he did. Frequent open purchases and requisitions on the American Red Cross were made until the first shipment of sup-

plies was received. On April 22 a large hospital tent, 20 by 60 feet, was received from the American Red Cross. This was erected on the site now occupied by the permanent dispensary. It accommodated medicine locker, desk, and 22 beds. Other smaller tents were used for isolation. The large hospital tent was made of heavy material and lined with heavy muslin and provided with flooring. Quite a large number of windows allowed sufficient light and ventilation. Morning sick call was now held in the front part of the tent.

On July 20 a severe windstorm swept over the station. The hospital tent was in danger of blowing over and men were kept busy securing it as best they could. But at 4 o'clock in the afternoon the elements conquered, the tent was blown away, trusses were broken, windows and window sashes shattered, and linen and supplies scattered over several yards. Fortunately there were no patients in the tent at the time and no one was injured. Everything possible was salvaged and stored in the buildings under construction. Sick call was held on the site of the former hospital the next morning.

A chief petty officers' barracks had just been completed and the commanding officer offered the use of the building temporarily. Two-thirds of this building served as a hospital and dispensary for over two months. It was able to accommodate 10 patients and furnished space for dispensary, office, and storeroom.

Venereal diseases were very low. There were only 10 cases during the year, and only 4 of these were exposed while attached to the station. This is very remarkable, considering statistics from other stations. Of course the native population was peasants and probably free from any disease, but week-end liberties were granted to one-half of the personnel at a time to a near-by summer resort which was largely patronized by women who had come from Paris and Bordeaux. The low rate of venereal disease, however, was probably due to the fact that a hospital corpsman with a complete prophylactic outfit was present with each liberty party, and he was available at any time to administer the treatment. None of the few cases came from exposure at this place, although a French Army surgeon stated that many of the women were infected with one or more diseases.

*United States Naval Base 9, Gibraltar.*—The medical department of the base has cared for all ships, converted yachts, etc., basing here, having no medical officer aboard on duty. It has been the policy to visit each ship on arrival in port and before putting to sea, and during the interval when summoned or when otherwise necessary. Regular venereal inspection has been held. A great deal has been accomplished in instructing all hands on the subject of personal and ship's hygiene; short talks have been given at frequent intervals on the above subjects. These talks have included the course of instruction in the Manual for the Medical Department on first aid.

This department has been in charge of inspecting the armed guard of merchant ships. These calls usually come through the flag office. All hands have been inspected for venereal diseases and other bodily conditions and given instruction regarding personal hygiene. The crew's quarters, bedding, and clothing have been inspected and nothing exceptional has been found to report.

*United States Naval Air Station, Halifax, Nova Scotia.*—The medical and surgical supplies for this station arrived on September 18, 1918. The plans for the station showed no provision for the medical depart-

ment, which was, of necessity, quartered in a tent. Efforts to have a permanent or temporary building provided did not avail. Due to the increasing number of sick and the poor protection which the tent afforded it became necessary to take over a portion of the unfinished barracks, and on November 4 the medical department moved into one of the long dormitories as a ward, taking one of the chief petty officer's rooms as a dispensary and office. With the acquisition of a second chief petty officer's room later, these quarters proved very satisfactory indeed, and all patients, except contagious ones, have been retained and treated here instead of being transferred to the military hospital at Halifax.

*United States Naval Bases 17 and 18.*—On arriving at base 18 it was found that a building had already been selected and assigned as a dispensary or sick quarters. This building was a combined lodging house and bar, 100 years old, and used in recent years by workmen on the Caledonian Canal. It was indescribably filthy and in poor repair. The place was full of odors, resulting mostly from an imperfect sewerage system and much accumulated filth. The building was built of stone, with a slate roof. It was the only place available within the limits of the base.

At first sight it seemed as if it could not possibly be made to serve as sick quarters. Owing to the great demand for labor of all kinds it was nearly four weeks before any work could be started. During the month of March rapid strides were made and with the expenditure of considerable effort a very suitable place was finally worked out.

Base 17, Invergordon, Scotland:

Average complement.....	744
Percentage of sick..... per cent..	2.1
Deaths.....	3
Total typhoid vaccination.....	111
Total cowpox vaccination.....	473

Base 18, Inverness, Scotland:

Average complement.....	727
Percentage of sick..... per cent..	1.8
Deaths.....	1
Total typhoid vaccination.....	107
Total cowpox vaccination.....	83

During the year the health of the officers and men at both bases has been excellent. This is all the more remarkable when it is considered that the barracks were crowded and the weather damp and wet for the greater part of the year, factors conducive to ill health.

Adequate ventilation was insisted upon and the installation of ventilating cowls on the roofs of the living quarters, together with electric blowers and windows constantly open, in a large measure offset the disadvantage of overcrowding.

A small epidemic of influenza occurred during June and July, there being about 100 cases at each base. One death from pneumonia following influenza occurred at base No. 17. No deaths resulted from the cases at base 18. During October a second invasion of the same disease threatened, but precautions were taken in advance, and only a few cases resulted at each base and no deaths. A few cases of mumps and measles occurred when the bases were first started, usually among men who were suddenly thrown into a new environment.



The venereal cases have been few in number until within the last two months of the year, when extended leave has been granted the men to visit London, Glasgow, and other cities. Many of those returning from leave developed venereal disease, and at the close of the year 5 per cent of the complement at each base were under treatment for this condition. Measures were taken in hopes of reducing the chance of infection from this source.

The food for the men has been excellent. The beef is unusually good, being native and dressed in the near vicinity. The preparation of the food has been carefully and conscientiously carried out, and general satisfaction has resulted. The galleys are ample in size, well lighted and ventilated, and contain modern apparatus adequate for all needs.

The water supply has been all that anyone could desire at both bases, as far as quality was concerned. The adequacy of the amount of the water supply has occasionally given concern, but it is thought that it will suffice for the coming year at various locations within the limits of both bases.

Facilities for handling the sick are excellent, and the entire medical department has given satisfaction at both bases, 17 and 18.

*United States Naval Air Station, Killingholme, England.*—Until July 20, 1918, this station was under British control. It was occupied by our naval forces jointly with the British from April 1 to July 20, at which time it was taken over by the Americans. On January 4, 1919, the station was evacuated by us. The American personnel in April was 460. The personnel for October, 1918, averaged 1,431. In December the British began to occupy the station again, preliminary to its reverting to them.

The location was on the River Humber, 12 miles from the sea, where there was a 20-foot rise in tide. The station was on made land 2 feet below high-tide level, and the surface drainage was poor. Liberty parties frequented Hull, 18 miles away, and Great Grimsby, which is the largest fish market in the world. In neither station was any attempt made nor had there existed any regulations to protect the health of the men. Athletics and amusements, together with all-day work on week days and Sundays, kept the men contented until the armistice.

The buildings used were of brick, or cement huts with wooden frames. The floors were of wood or asphalt. No truck layers could be obtained for the construction of these huts, and the American civil engineers utilized our seamen for the work, though it was asserted in the neighborhood that the results would be unsatisfactory. The engineers put portable partitions where walls were desired, and sailors laid the bricks against them; thus there was no chance for mistake, no need for plumb line. When the walls were up the partitions came down. Huts were heated by soft-coal and oil stoves, all quarters being fitted with hot and cold water from heaters. The error in construction was in making the chimneys too small, as they were clogged up by soot from the soft coal. Bathing facilities consisted of 6 tubs and 24 showers.

A large iron hut was constructed to house 300 men in the construction gang. Galley and mess halls were in the main building in the center of the camp. Adequate water supply from an artesian well 120 feet deep was pumped into a 60,000 gallon tank. The oil tanks

at this station make it the largest oil storage source of supply for ships in the world.

The tanks were put up by a German firm, and so the Germans knew of their location, and bombing raids were common. They never succeeded in injuring them.

All cases of submersion were put in an electrically heated baker, an oven with two compartments, each taking a man on a stretcher. This baker was heated by electricity to 250 F. and was of great value in restoring animation. All hydroplane stations should have this installation. A hospital was about to be built when the armistice was signed. Various huts were available for use as medical wards. The estate of the Earl of Yarborough, about 8 miles distant, had been converted to hospital purposes, and our patients were sent there from time to time. They were under the most advantageous surroundings, enjoying country life in a well-equipped hospital. Both the officers and men sent there were treated as the personal guests of the earl. This shows how the British feel to our men as well as to their own sick.

It is considered that in a permanent camp of this kind there should be a shower bath in each one of the huts, as this would give the men an opportunity to start the day with a bath, and would often avoid the troublesome skin eruptions which become prevalent in October and November, and for which many men were held over from the first draft returning home in order that they might be in better condition on arrival in the United States.

Tent life became practically impossible as the winter came on, the dampness and the mud rendering them inferior to the huts. For tent life the pyramidal type was considered the best, at it was more easily ventilated. The tendency of the men was to close the tents tightly and the ventilation was not as good as in the huts. The tents were heated by kerosene stoves, which gave the men a chance to dry shoes and stockings. The huts were also much easier to ventilate in the rainy weather and much easier to inspect and keep dry. The huts had running fresh water, but there were only a few spigots for all the tents. One excellent feature of the tent life was that not more than two men were allowed in a tent, and in many cases a man had an entire tent to himself until there was an excess complement, when, in a very few instances, there were three or four men in a tent. The tents were abandoned November 15, 1918, sufficient huts having been constructed to accommodate the men. Up to this time, influenza, tonsillitis, etc., were not more prevalent in the tents than in the huts due undoubtedly to the unit system that necessarily obtained when using tents. From experience here huts or shacks are, however considered preferable to tents. Experience also showed here that when a mess hall is built it should be twice as large as at first estimated or at least be capable of quick and easy expansion.

The latrines and closets on the station were of good type, built of brick and cement, sufficiently isolated from the living quarters, but not sufficient in number. There is again the question of not providing for a slight excess and also for expansion. In this construction the closets and urinals were practically exposed to the open air and the arrangement was excellent, giving perfect ventilation and a certain amount of open-air disinfection, a very desirable feature in a permanent camp. The flush was at times insufficient, due to the

low-water pressure, and the same fault was found in the closets in officers' huts. This, however, could have been corrected had the station continued.

The general plan of first aid was to have supplies distributed at different parts of the station, so that in case of any number of casualties from bombs there would always be a fair supply even if some of the stores were destroyed. Each hydroplane also had first-aid packets especially made up in a small canvas bag with canvas strap handle for securing it in place. As the "flights" were distant about half a mile from the dispensary, a large chest of dressings was kept there. An ambulance was in readiness at all times.

The station lacked an operating room of any kind but was fortunate in having the General Hospital, Grimsby, for patients, the distance being about 18 miles. A naval hospital had been appropriated for, to be built on higher ground about 2 miles distant from the station, but the building had been delayed and by the end of October it seemed that the war was sufficiently near termination to make it unwise to begin construction which would take at least three months.

	Admis- sions.	Readmis- sions.	Injuries.	Sick days.	Average comple- ment.
1918.					
April.....	21	3	1	35	460
May.....	23	7	1	139	551
June.....	27	4	4	283	829
July.....	51	15	5	467	977
August.....	50	5	8	370	986
September.....	40	8	6	423	1,351
October.....	147	8	17	1,025	1,431
November.....	140	9	12	1,252	1,422
December.....	54	12	8	1,204	410
Total.....	553	71	62	5,198	.....

	Gonorrheal diseases.	Chancroid.	Syphilis.
1918.			
April.....	12	7	.....
May.....	16	8	.....
June.....	7	4	1
July.....	22	7	1
August.....	21	7	7
September.....	17	6	.....
October.....	21	7	2
November.....	19	2	2
December.....	8	2	8
Total.....	143	50	16

This report of venereal diseases when analyzed is encouraging as far as the work of the station is concerned, showing a great decrease in the per cent of cases. In April the per cent of admissions for venereal diseases was 70 per cent and in October 18 per cent. This decrease is ascribed to several causes. From April through most of July the station was part British and part American and the liberty and men could not be controlled as thoroughly as later, and the men at first did not avail themselves of the benefits of prophylaxis as they did later. Beginning in August, every case of gonorrheal disease was put on the sick list for 10 days of treatment, and thus

there was a loss of 10 days' pay for "misconduct." The loss of pay was a deterring factor against contracting the disease, and the rest in bed seemed to reduce complications. In fact, the 10 days on the sick list produced such good results in reducing the number of cases that it is worthy of consideration as a general measure. There is also another reason for the lower per cents in the later months, namely, that the men as a whole had been in the service longer and could better care for themselves and were not so hasty in exposure, the incidence of these diseases being mostly in the young men in the service.

Considering the condition of the principal city in which the men had liberty, described by the British medical officers as the "dirtiest, most vulgar, and immoral metropolis of England," the venereal results have been very satisfactory. The history of venereal diseases on this station shows that a new draft has a large incidence of infections, the boldness of the street women accounting for this. The establishment of prophylaxis stations in this city had been contemplated, but on account of the large area to be covered, the nature of the habits and practices of the immoral element in the city and the limited number of the United States Navy hospital corpsmen, the plan could not be carried out by the naval authorities and the city authorities could do nothing. The next best plan was followed, viz, to instruct the personnel in regard to venereal diseases, and provide a suitable venereal head on the station where they were obliged to take treatment if exposed to infection.

It was apparent in the last months that both personnel and officers had lost some of their initiative and also some of their physical stamina. This was accounted for by the monotonous life, the isolation, mud and fog, and also by the fact that the incentive for work had gone, it being "over, over there." In December walks were muddy and heavy shoes or rubber boots were an absolute necessity. This was true much of the time, but was intensified in the winter months. The weather was not often freezing, but the dampness made the wearing of heavy underclothing and jerseys a necessity. The British in this location wear heavy underclothing, which they have learned to do by experience, and the Americans were soon obliged to do the same. Acute colds are easily contracted here by the least infraction of the laws of hygiene, and the persistent cough of bronchitis is common and very noticeable when the personnel is assembled. In December, up to the time of writing, there has been no pneumonia.

During the last weeks of occupation much time was spent in policing the station and putting it in good sanitary condition after the evacuation of the greater part of the personnel and the packing of the stores.

In addition to the work on the station, the medical officers deserve much praise for their willing work with the civilian population in the near-by towns, which was very dependent on the American doctors for both attendance and medicines. In December there were epidemics of influenza in towns a few miles distant from the station. Both medical officers and the hospital corpsmen were faithful to their duties and untiring in their efforts during the occupation of the station by the Americans.

The station has been indebted to the Red Cross for supplies which it could not have otherwise had, especially comforts such as cigarettes, chocolate, bath robes, blankets, etc., and even a complete dental outfit, chair and engine. The steam sterilizer was also supplied by the Red Cross and some medicines. The Red Cross furnished the enlisted men with toothbrushes and tooth paste free of charge. The Red Cross also shipped to the station a portable hospital, which, had the station continued, would have been used, but on account of the armistice was forwarded to Southampton.

*United States Naval Air Station L'Aberwrach, Finisterre, France.—*

The appointments of the sick bay were excellent. The medical supplies were new and entirely adequate in quantity and scope. For surgical purposes the sick bay was fitted with an operating table, sterilizer for instruments, and a splendid surgical instruments kit and case. A supply of the necessary linen was easily kept on hand sterilized at the near-by United States Naval Hospital Brest. The sick bay was a building of 20 by 107 feet, neatly painted within and without and quite centrally located. It consisted of a dispensary, ward, dental office, venereal treatment room, storeroom, bathroom, and quarters for the medical personnel. As with other buildings on the station it was lighted by electricity. The ward, 30 by 20 by 12 feet, contained 14 beds and through the courtesy of the Red Cross was provided with literature for the patients and a phonograph. The stove placed in the center of the ward afforded the necessary heat and a fireplace was also contemplated, mainly for its cheerful effect. The dispensary was very well fitted for the preparation of all medicaments needed. The medical storeroom was rain-proof, adequately fitted with shelf and drawers and no supplies have required survey because of deterioration while stored. The operating room was used also as an examining room and had besides the window a skylight. It was kept in readiness for aseptic operations at all times. A room with two beds was reserved for isolation or for sick officers quarters, as occasion might require. Venereal treatment and prophylaxis were given in the same room. The venereal patients were required to come at definite hours and the place was thoroughly cleaned after each period. The dental office was reported by the dental officer to be satisfactory. Having quarters for the medical officers and hospital corps in the sick bay building proved an extremely valuable arrangement, convenient to the medical officer and hospital corps and allowing a vigilant control of the hospital corps and patients. During flying periods a medical officer was always on the station.

Everything was in readiness for any emergency that might arise. Sterile instruments and aseptic linen allowed for immediate operative procedures when necessary. During flying periods a hospital corpsman was always in the boat with a first-aid kit whose use he understood thoroughly. An adequate number of stretchers were on hand for all accidents and telephone communication with the mainland could obtain the ambulance to take the injured to the naval hospital, only an hour's distance.

The instruction of the hospital corps was not only carried on formally but was kept in view at each sick call, examination, and inspection. The station was fortunate in securing a very able set of men, many of whom, after being on the station the necessary time,

obtained advancement in rating after a thorough theoretical and practical examination.

*United States Naval Air Station, La Trinité, France.*—The station site was high and well drained. The barracks for the crew were to be several summer houses bordering on the plot of ground intended as the hangar site. These houses were high and dry, and of fairly good construction. A survey of the barracks showed there was room for about 85 men in the buildings already rented, allotting a minimum air space of 450 cubic feet per man. More houses were rented as the complement exceeded this number. It was decided to remove all furniture, beds, etc., from the houses and put in cots instead of hammocks. Such tables and chairs as were desired could be made by the men. The latrines connected with the houses were found to be of such poor construction that it was decided to use them only temporarily until other arrangements could be made. On analysis, before any men arrived here, it was found that practically all available wells were polluted. All water was therefore chlorinated from the first.

The dispensary was permanently located in the administration building, two rooms being used. Due to lack of room, no sick bay was available and the bed patients were treated in their quarters. The sick list was ordinarily very small, so this worked fairly well until the influenza epidemic. A separate cottage was planned for a sick bay and dispensary but one was not available until late in the autumn. Negotiations for it were about to be closed at the time of the armistice, when all plans for extension were canceled.

All hospital cases were transferred to the United States Naval Hospital, Lorient, a distance of about 30 miles. For the first six months we were without an ambulance. An apparatus was made whereby the stretcher could be attached to the Cadillac touring car for all emergency cases. Fortunately no stretcher cases had to be transferred. A Ford ambulance arrived in September. The influenza epidemic developed about July 5. Out of a complement of 140 men there were 40 cases. Several cases in which the course was too benign to be broncho-pneumonia showed peculiar varying and daily shifting of areas of slight consolidation and bronchial breathing. Their recovery was a little longer than the average but uneventful. Two cases of pneumonia developed, one frank lobar and one broncho-pneumonia. Both recovered. No fatal cases resulted from the epidemic. Having no sick bay was very unsatisfactory at this time; but the sick were isolated as much as possible and kept in the barracks. The epidemic was not nearly so severe as reported from other places. The medical officer of the station, being the only physician in a radius of 10 miles, was from the beginning called upon to do much work for the French civilian population.

*United States Naval Relief Unit at Lille, France.*—The United States Naval Relief Unit organized chiefly for the purpose of building barracks for the shelter of the civilian population returning to devastated areas was attached to and worked under the direction of the Commission for the Relief of Belgium and Northern France (the Hoover commission). Active operations began about January 1, 1919, with a personnel of 5 officers and 50 men. The complement of the unit was augmented with drafts from time to time until it num-

bered 15 officers and 519 men when disbanded in May, 1919. The personnel of the unit was derived mainly from the various United States naval air stations along the coast of France and Belgium, etc., which became inactive and then prepared to demobilize after the cessation of hostilities. The officers and men were originally picked volunteers and included a line officer in command and a medical, supply and civil engineer officer.

Much of the material for which a proper disposal had to be determined on the demobilization of the air stations consisted of fabricated barracks which had never been set up. There was also available a considerable stock of food, clothing, medicines, and motor transports of distinct value in succoring the destitute. It was all taken over by the commission which then gave the medical officer a free hand in distributing as he saw fit the great quantity of medicines and hospital supplies.

Immediately after the arrival of the first draft a large bank building in Lille was secured through the British billeting officer and put into shape as men's quarters. It was soon realized, however, that due to an early increase in complement this building would not be large enough. A much larger building was accordingly taken over and occupied until the service terminated. The building was composed of two wings, five stories high, and had a courtyard in the center. Before the war it had been used as a clothing factory and during the war it was occupied by two batteries of German artillery, the rooms on the ground floor being for stabling horses and the upper rooms serving as barracks for the men who wrought sad havoc in the handsomely appointed quarters of the former manager. In this connection it is worthy of note that although the rooms were rather filthy in appearance and the floors of the lower rooms were fairly well covered with manure, there were no odors or vermin, thanks to the liberal use made by the Germans of chlorinated lime. The floors and walls of the entire building were literally whitewashed with this substance.

A great deal of cleaning, scrubbing, altering, and repairing of leaky roofs was necessary, and much building of sanitary heads, etc., had to be done but it was accomplished in a fairly short time, so that suitable accommodations became available for about 6 officers and 180 men, the number employed in Lille proper. Ample space was taken over for a dispensary and sick bay.

The majority of men were divided up into field parties varying from 20 to 60 each and located in the following places: Wavrin, Bailleul, Douai, Cambrai, Valenciennes, St. Quentin, Guise, and Noyon. They were usually quartered in partially wrecked châteaux, that were fairly habitable for a limited number of men.

The medical personnel consisted of one medical officer, one dental officer, two chief pharmacist's mates, six pharmacist's mates of various ratings and two hospital apprentices. Three pharmacist's mates were on independent duty at the largest camps, i. e., Wavrin, Cambrai, and St. Quentin. The dental officer visited the different camps as his services were required; the medical officer made frequent visits to all camps for the purpose of conducting sanitary inspections as well as to look after the sick. Three of the first barracks built, one in each of three widely separated localities, were set aside as dispen-

saries. They were supplied with a very complete stock of medicines and dressings, beds, linen, blankets, stoves, mess gear, etc., and these stocks were replenished from time to time as occasion demanded.

The equipment for the dispensary for the care of the civilian population at Wavrin included beds, cooking and heating stoves, food and fuel. Sick call was held here every other day for three months, there being no French medical aid available to meet the needs of some 3,000 repatriated refugees until March, when a doctor just released from the army reached the place, and the building with its contents was turned over to him.

Similar dispensaries were fitted out at Wervick and Don. The former was put at the disposal of the French medical man immediately and the latter in May, after it had been operated with great success by a Navy hospital corpsman.

A large number of people took advantage of these opportunities for succor and treatment, the attendants at sick call varying from 50 to 100 at each visit. Medicines and surgical dressings were supplied free to such medical men as were to be found in the vicinity. When the unit was demobilized in May the work was assumed by the French Army. By that time a vast amount of good had been accomplished and the American sailor at work had won the praise and grateful appreciation of many hundreds of destitute people.

The general health of the Navy unit was good until the epidemic of influenza in February, when 50 cases of the disease developed in it with 2 deaths. Injuries due to the accidental explosion of mines, shell, and hand grenades were numerous among our men, one losing his life by the explosion of a hand grenade, another sustaining the loss of a hand, and many others receiving injuries of a less serious nature.

*United States Naval Base 19, Lorient, France.*—The buildings include barracks, offices, machine shop, storerooms, prison, and hospital.

Three buildings, formerly hotels, were taken over for barracks, two, the Hôtel de l'Europe and the Hôtel de la Croix Verte are connected. They had been used by the Belgian refugees and when taken over by us were in a filthy condition. Much time and effort were required to put them in a fairly sanitary condition.

During the greater part of the time since the base was opened these buildings have of necessity been overcrowded. Under these conditions the disposal of sewage proved to be a problem of the greatest difficulty. There was a sufficient number of flush closets but the cesspools were inadequate to care for the large amount of sewage incident to the quartering of so many men in these buildings. The large amount of water used filled the cesspools in three days. It was found necessary to cut off the supply of water to the flush closets and have them flushed by hand at regular intervals during the day.

Notwithstanding the difficulties encountered, the quarters have been kept, on the whole, in a satisfactory sanitary condition and the general health of the personnel has been excellent. There have been two epidemics of influenza here, one in September and one in December. Other contagious diseases have been at a minimum. Since May a venereal prophylactic station has been in operation which has reduced considerably the venereal disease at this base.



*United States Naval Air Station, Moutchic, Gironde, France.*—In the very beginning there were no facilities of any kind. Trees were felled in order to effect a clearing for prospective structures. During this period the men, approximately 50 in number, lived in tents and rude aeroplane boxes. Water was obtained from a shallow well but before use it was boiled and filtered through sand and charcoal.

At present the sick bay is a brick walled structure 26 by 65 feet in size. It contains an office, a dental room, a surgical dressing room, a dispensary, a small kitchen, a ward, and head. The ward is of about 15,000 cubic feet capacity, ventilated by windows and heated by a centrally located stove. It has been adequate, excepting during the influenza emergency.

The health of the personnel was indeed excellent on the whole. In the month of September, 1918, there was an epidemic of influenza involving nearly one-fifth of the enlisted personnel. There were also epidemics of less importance, viz, mumps and ulcero-membranous angina, neither affecting more than a dozen individuals. Two cases of cerebro-spinal meningitis, one of scarlet fever, and one of malaria have also occurred. Scabies and furunculosis were very common, particularly the former. Venereal diseases were not in excess. Roughly 6 per cent of the men have contracted gonorrhea, 6 per cent chancroid and 2 per cent syphilis during the year 1918. Since the station has been in commission there have been 14 deaths, 2 from meningitis, 2 from pneumonia and 1 from drowning and the others from aeroplane accidents.

*Northern Bombing Group.*—This unit was organized at aviation headquarters in Paris in the spring of 1918, its object being to furnish day and night bombing service against certain objectives along the Belgian coast in cooperation with the British flight group, Royal Air Service. Four fields were finally established with a total complement of 2,300 officers and men.

The low character of the terrain occupied, the life under canvas, and the procuring of potable water made the maintenance of sanitary conditions difficult. The portable "Dixie" type of barracks was used for dispensaries, and the double-walled Besseneaux tent afforded the best tentage shelter for habitation. The use of night soil for fertilization and the shallow wells in a flat, sandy country intersected by canals made the water a menace to health, as it showed a marked colon bacillus content. Boiling and chlorinization was uniformly practiced. On the higher ground where deep wells through limestone deposits were available the water was scanty and hard. The sewage disposal was by the bucket system. Iron buckets in fly-proof containers and treated by cresol disinfectant were used. The enlisted men's uniform was reported on adversely by the senior medical officer, who considers it ill adapted for a working costume ashore, and the shoes were too light.

The medical personnel for the bombing group consisted of 8 medical officers and 3 dental officers, assisted by 40 hospital corpsmen. Each squadron of the bombing group had its own dispensary and evacuated serious cases to British and French hospitals in the vicinity. Medical stores for these dispensaries were obtained from the United States Naval Medical Supply Depot, Brest. Ten White ambulances were in use for the entire group.

The influenza epidemic caused 473 admissions, with a mortality of 0.7 per cent of the entire personnel, and a case mortality rate of 3.4 per cent. Of the total number, 395 cases were treated at their local stations, and the balance evacuated to No. 30 General Hospital, British Expeditionary Forces, Calais.

Aside from the influenza epidemic there was very little sickness. The casualties from injury were as follows: Injured in combat, 3; deaths in combat, 3; injured through crashes, 4; killed in crashes, 3; injured by other causes, 44; killed by other causes, 17.

*United States Naval Air Station, North Sydney, Nova Scotia.*—The station was only a temporary one, so that no hospital buildings were erected on the grounds. On application to the commanding officer a room was secured adjoining the pay office, in which the sick bay was located. On September 3 Assistant Surgeon C. N. Caldwell, U. S. Navy, reported for duty and took charge of the medical department. Up to this time there had been no men on the sick list. As no medical supplies had yet come, drugs were procured from the local drug store sufficient to handle each case as it arose. On September 14 the epidemic of influenza appeared, and the men who reported were placed on mattresses on the floor in the sick bay, no beds being obtainable until one of the local ministers borrowed cots from his congregation and supplied them to the sickest patients. Within a few days the sick bay was so overcrowded that another location had to be found, and on the 21st an old hotel was secured and occupied at once. As there were no facilities in this building for the handling of the very sick, several cases that had developed pneumonia were transferred to the local hospital. By October 9 most of them had been discharged from the sick list back to light duty, so that all of the rooms except four (including the galley) were turned over to the executive officer for housing the men who were being moved from tents.

*United States Naval Air Station, Pauillac, France.*—The station called Pauillac was located about a mile from that town, in a village called Trompeloup and about 30 miles from the mouth of the Gironde River, or a little more than halfway from the mouth to Bordeaux. Trompeloup grew up around the docks which were installed here many years ago to save the wait for the tide to get to Bordeaux, but political and financial influence at Bordeaux prevented their being used to any extent.

The climate was very disagreeable, especially in winter. The thermometer never got very low, but the humidity was so high that the cold was felt very keenly. The rain occurred almost every day and there were very heavy fogs.

The camp site was not at all good from a sanitary point of view, but it had to be here from an industrial and transportation standpoint. It had docks which could take six large ships and also fairly good railway connections and side tracks, as well as some warehouses.

The purpose of the station was that of a receiving station for material and personnel for aviation and to be an assembly and repair plant for planes and motors.

The station really commenced its existence on December 1, 1917, with a personnel of 2 officers and 26 enlisted men, who occupied

an old stone building now used as administration offices. This was built originally as a steam laundry to cater to the trade of the transatlantic liners which never came. The station did not begin to grow very rapidly for some months. On January 30, 1918, the station had less than 1,000 men. From then on to May the increase was gradual and reached about 2,000. It then took a quick jump by the arrival of large drafts and ran up to around 5,000 by July 1.

Many of these men stayed only a short time, as they were being distributed to flying stations up and down the coast. As they were distributed and our own construction became lighter we ran down to about 3,500 when the armistice was signed, November 11, 1918. About 800 men were shipped home December 1, 1918, and a few hundred were sent through from outlying stations, so that we ended the year with about 3,000.

The great difficulty in the early part of the year was to get adequate shelter. The camp was in the middle of a typical water-front village, with all the usual undesirable qualities. Some of the houses were rented, some bought, and some commandeered later. We did not get all of them out until October 1, 1918. The buildings erected were barracks (fabricated) known as "Dixie huts," measuring 20 by 106 feet. Their delivery was slow and they were not really adequate until about August 1, 1918. Before this there had been more or less unavoidable crowding. Hammock stays were put up and men slept in hammocks. The mess halls were completed about the middle of July and fed at one sitting 3,300. The assembly shops and hangars were well built, with concrete floors, and were entirely sanitary. By August 1 we had barracks in sufficient number to give each man between 45 and 50 feet of space, and stoves were ready to be put up for the winter.

The messing at first was in the building intended for the garage, and while all concerned did their very best it necessitated practically continuous serving from daylight to dark—at one time 14 messes per day. The food has been plentiful and reasonably varied, and, since the large mess hall and kitchen were installed, very well cooked and served. The supply department has done all that could be done at all times in this regard. The fresh-meat ration was gotten from the United States Army and consisted almost entirely of beef, as that seemed to be all the Army carried over here.

Abundant water for the station has been gotten entirely from a 1,400-foot well. This water showed a bacterial count just a little above that considered safe, although no surface contamination could be located, such as cracks in casing, etc. It has been chlorinated with liquid chlorine. Captain H. P. Letton, Engineer Corps, United States Army (loaned to the Army by the United States Public Health Service), gave us invaluable help in this work.

The distribution was at first unsatisfactory because of inability to get piping, but by July this was remedied. The toilets and showers are in separate buildings with concrete floors. These buildings had toilet seats and showers for 4 per cent of the personnel and ample urinal and scrubbing troughs.

All sewage and bath water went through septic tanks (four in number, of the three-chamber variety) and emptied into the river through a small creek. The sewage came out thoroughly liquefied,

but had a slight odor. The system was very satisfactory. The lighting of the station has been by electric lights entirely. Of necessity, the heating has been by stoves.

Miles of board walks have been put down and have been a great comfort and of great value in promoting cleanliness. An energetic antify campaign was carried out during the summer with screening for mess hall and sick bay. Mosquitoes were not very bad, and we had no malaria.

The health of the station has been exceptionally good. The percentage of sick days may seem at first to be rather high, but the policy of putting mild cases to bed has been amply justified by the low mortality rates. There have been several isolated cases of mumps, measles, scarlet fever, diphtheria, and cerebro-spinal meningitis, but no deaths from these. The antimeningococcic serum supplied acted perfectly.

There was one death from undoubted typhoid in a civilian employee (American), who had no clear history of prophylaxis, and there were no other cases.

The epidemic of influenza developed about the middle of September, and we had fewer deaths and less severe cases than any other organization on the coast. There were about 4,500 personnel at the time and we lost only 1 officer and 10 men. Since then occurred deaths from pneumonia, which should be charged up to influenza.

Because of the size of the station and the imperative industrial demands of war it was impossible to do any wholesale spraying of noses and throats or masking. The small percentage of deaths is due to putting every case to bed as soon as he complained of feeling badly, thorough purging and absolutely no moving or transfer.

The percentage of venereal disease has been moderately high. There are two reasons for this: First, liberty was given in Bordeaux the only near-by city of any size, and there is a great deal of venereal disease there; secondly, while the United States Army placed at our disposal their prophylactic stations in Bordeaux, there was a lack of really trained men for such stations and the results were poor in consequence. Another cause was that while on the whole our men were very orderly and well behaved, still plenty of alcoholic drinks could be secured in Bordeaux, and it is an axiom that no matter how much a man may know as to the value of prophylaxis, a little alcohol makes him careless of promptly carrying it out.

The near-by villages while surely high in percentage of prostitution and venereal diseases, furnished very few cases because we were able to carry out thorough prophylaxis within a few hours.

The drafts from Philadelphia were noticeably high in venereal percentages on arrival here. Some had primary sores and there were a goodly number of secondaries.

A most striking feature of the venereal sores was that nearly all showed treponemata on smears (we always treated with salt solution) and were later checked up by Wassermanns.

The treatment was by the usual methods and carried out very thoroughly. The French neosalvarsan proved very satisfactory and practically took no time off from work, as there was little or no reaction, and we had no bad results whatever.

There was never at any time a lack of sufficient medical personnel but there has been at times a lack of sufficiently trained (in the real

sense of the word) hospital corpsmen. It has been possible, however, to get plenty of good bright men who were excellent material. All supplies asked for were given without question, but the actual delivery often left much to be desired. But in this the Medical Department was no worse off than the other departments.

The Red Cross secured the Château Beaucaillou, 6 miles away, and prepared it for a hundred beds about February 1. They furnished material, and housekeeping, and managing staff. The medical staff and hospital corps (4 and an average of 14, respectively), were furnished by the Navy. The Navy also furnished free coal and gasoline and gave the privilege of commissary purchases at issue prices and paid a money ration.

The Red Cross deserves much credit for its work, but it was hampered by several things, the most marked being the owner's restrictions, no contagious disease, no erection of barracks or tentage on grounds, and no increase of kitchen facilities being permitted.

A small sick bay and dispensary were established in the old stone building originally occupied and were used until June for the milder cases and for sick call.

Major surgery was sent to the United States Army base hospital at Bordeaux until May, when the Red Cross hospital installed an operating room in which about 100 operations have been done very satisfactorily without a single infection.

By June two barracks 20 by 106 feet had been constructed for use as a yard dispensary. These were very well laid out with partitions, baths, toilets, washbowls, etc. They furnished offices, bed room for officer of the day, pharmacy, two sick rooms, eye, ear, nose, and throat room, sanitary office, and beds for 20 patients. Another barracks next to them was asked for in July and this gave 40 more beds. During the influenza epidemic two more barracks alongside were given us and all cases were treated here. This worked out very well as we were within a hundred feet of the mess hall so that feeding was easy.

The equipment could have been made to suffice but it left much to be desired. In June, the Red Cross offered to rent another château about 3 miles distant, and install there a hospital of 300 beds but for many reasons this was declined after being carefully considered. It was decided in August to install large sick quarters of our own and the French Government gave us for this purpose five stone buildings adjoining our own camp in what was known as the lazaret. This is the French quarantine station. Due to unavoidable delays and to the great amount of work needed (there was no lighting, water, plumbing, or sewerage) the buildings were not ready to occupy until about the time the armistice was signed. They were completed as we left, since the United States Army would want this as an embarkation camp. In the first few days of December, the Red Cross hospital was closed and all patients were cared for on the station, several major operations being performed in the new place. It has a capacity of about 200 beds and is very well appointed.

The flying here was by experienced men, and while there were a few falls no one was injured, except one man who received a slight scalp wound from getting too close to the propeller. The docks have furnished a few accidents, with only two deaths. It is interesting

to note that death in three cases in drafts coming to this station by rail was due to men riding on the tops of cars and being swept off by low bridges and tunnels. The Army lost scores and scores of men in this way.

Our dead are buried in Pauillac Cemetery, in a plot assigned us. We had 38, which included about 18 from ships, etc., the U. S. *Marietta* losing 14 from influenza. We had one officer and one man buried at the United States Army hospital at Talence. The graves are marked with crosses. In addition there are brass plates on the coffins and bottles with names inside. Blue prints are now being prepared of the plot.

The medical department has rendered medical and surgical assistance to many of our own ships in the river, as well as to many ships of friendly powers, especially during the epidemic of influenza; also to United States Army men in attached camps near us. It also assisted them in the burial of the dead. Owing to the mobilization of the French medical profession in its entirety, the medical officers here have treated many French people as a matter of common humanity. We have furnished a great many expendable medical supplies to our own ships stopping here and have received patients from them.

On January 15, 1919, the United States Army officially took over the camp, and men and material were sent away as fast as possible, half the station having left on January 12.

*United States Naval Air Station, Porto Corsini, Italy.*—The station was located near the coast, and the surrounding country consists of marshy lands built up by gradual deposits of the sea, intersected by a network of canals which receive all kinds of excreta and refuse.

Five brick barracks, with cement flooring, were used for the crew's quarters, allowing each of 60 men to a barrack approximately 250 cubic feet of air. Each barrack had 13 windows, and a small pane of glass was left out from each window to insure proper ventilation. These barracks were heated by means of a large hot-air blast furnace and lighted by means of oil lanterns.

The water first received on this station was obtained from the railroad reservoir at Faenza, and upon examination was not found to be of potable quality. For this reason it was recommended that the potable water for this station be obtained from a tap at Faenza, receiving its supply from the foothills about Florence by means of a pipe system. This change was effected on November 4. All water received on this station was treated with 6 grams of hypochlorite of calcium to the ton before being used.

The sick bay was located east of the barracks and consisted of a wooden structure 50 feet long, 15 feet wide, and 10 feet high, with wooden flooring 1 foot from the ground, 2 doors and 12 windows. Its equipment was 15 cots with linen, a cabinet for medicines, shelving for extra linen, a table from which the convalescents ate, some shelving for mess gear and hospital appliances, and one small table used as a desk. This sick bay was heated by a large coal stove and lighted by means of kerosene lamps.

The dispensary was located southeast of the end barrack and was part of a one-story brick building. The only fittings were shelves

for stock bottles, a long counter-dispensary, two small tables used as desks, and a typewriter.

A room assigned as hospital corpsmen's quarters, containing six bunks, was used as an isolation ward when necessary. The room was heated by means of an oil stove and lighted by means of kerosene lamps.

*United States Naval Base 27, Plymouth, England.*—The senior medical officer, writing at the time of demobilization, expresses the opinion that wherever practicable portable buildings are preferable to converted buildings for temporary bases. New temporary structures are more quickly installed and less expensive in the long run than buildings designed for commercial or other purposes which have to be altered and remodeled for military use. At base 27 the necessity of returning the buildings utilized so as to be available for their original purpose precluded any radical modifications of them.

The barracks was a four-story stone building divided into 12 compartments, 6 of which accommodated 80 to 100 iron cots each. Men slept on the head-to-foot plan, and heavy linen strips (washed every fortnight) were rigged between the lines of beds as screens. Ventilation was secured by keeping all windows on the lee side of the building open throughout the day. The stone walls and cement floors had the advantage of being fireproof, but in the rainy, sunless winter climate of Devonshire accumulated moisture constantly, until steam-heating was installed. Electric lighting was supplied, but it was not sufficient to read or write by, so that the men went to the Y. M. C. A. building for that purpose. Chief petty officers were quartered by twos and threes in the small building occupied previously by laborers. The rooms were lit by electricity and heated by stoves.

All mess gear was first washed with soap and water and then placed in boiling water for five minutes. All tables and benches were thoroughly scrubbed and exposed to the air out of doors once a week.

A seven-room dwelling, formerly occupied by dock laborers, was assigned to the medical department, and after prolonged scrubbing, scraping, airing, and painting was equipped as a base dispensary. It contained two 10-bed wards, baths and showers, dressing room, pharmacy, etc. The personnel consisted of 3 medical officers and 13 hospital corpsmen.

Serious cases or those requiring radical surgical treatment were evacuated to the Royal Naval Hospital, Plymouth. The services of this well-equipped and splendidly-manned establishment were most generously placed at our disposal and were highly appreciated. The availability of this institution was a particularly fortunate circumstance during the period of reconstruction of the medical building when plumbing and sewerage was being installed, etc. Stores were obtained from the naval medical supply depots at Liverpool and Brooklyn, N. Y.

The total complement is considered in this report to be the combined complements of the base and submarine chasers operating from it. This complement varied from 2,300 to 1,500 during the existence of the base. The frequent changes in the assignment of chasers from this to other bases caused some confusion in the disposition of health records. At first all records were retained aboard the chasers so that they would accompany the men at all times, but

this was not immediately available when a man reported to the dispensary for treatment. The following plan was instituted: All records from each submarine chaser were filed at the dispensary under the number of the vessel from which they were obtained. In this way the records were at hand for reference and entries by the medical officers and could be quickly returned to a vessel if it were ordered to some other station or given prolonged duty away from the base.

Abstracts in the health records of the men attached to the submarine chasers have lapses of from one to three months, during which time no entries were made. These lapses occurred for the reason that some of the vessels were on duty in localities where the services of a medical officer could not be obtained. In a few instances the commanding officers of the chasers attempted to make the proper entries in the abstracts, but because of ignorance of the procedure the results will produce more confusion than clarity in providing a history of the man's health while aboard.

The health of the officers and men attached to the base and the submarine chasers as a whole has been good if the climatic inclemencies and the exhausting nature of submarine chaser patrol are considered. The total complement of the base and chasers combined has varied between 2,300 and 1,300 during the existence of the station. The percentage of sick has increased gradually with the fall and winter months from 6 as the daily average of sick for the month of July to 77 as the daily average of sick for the month of January. This increase was caused by the increase in complement and the presence of epidemics as well as the more severe weather. The mortality rate per thousand was 2.53 per annum; three deaths were accidental, two from tuberculosis, and four from complications of influenza.

One case of varicella was the only exanthematous disease admitted. Six cases of mumps occurred in drafts while en route from the United States, but none appeared after arrival.

During the latter part of June and continuing until the end of July there was an epidemic of influenza involving 3 per cent of the total complement. The disease although typical was of a mild nature, the average sick days per case being five. There were no fatalities. This disease reappeared in epidemic form of more virulent character about the 15th of September. Approximately 15 per cent of the total complement was attacked with an average sick days per case of ten. There were four fatalities from broncho-pneumonia which occurred aboard ships making this port of call; these cases were transferred to the base from the ships upon arrival. These cases were in a serious condition when received. The period of epidemicity of the disease was from September to the middle of November; after that occasional sporadic cases of influenza occurred.

During the months of June, July, and August, mild urticaria was widely prevalent among the officers and men. It is believed that this was caused either by mechanical or chemical irritation of the gastrointestinal tract from the substitutes for wheat bread. In September white flour bread was available and this complaint rapidly disappeared after white bread was used. Discomfort was caused from this interesting phenomenon but no other effects were noted.



The submarine chasers are wooden vessels 110 feet in length and 12 feet abeam. Their power is supplied by three gasoline motors. These vessels proved themselves to be very seaworthy, but from a hygienic and sanitary basis they developed many faults when on seagoing patrol.

The full complement under which these vessels were operated consisted of 2 officers and 25 men. This complement was necessary for active service under war conditions and prolonged periods of patrol, i. e., four days out and two days in; however, under peace conditions it is believed that the complement should be reduced to 1 officer and 15 men. A complement of this size could easily man the vessel if it was not assigned to continuous duty over a period of several days. This reduction would better the living conditions, allow for some comfort, and improve the health of the men, because there would be less chance for spread of infectious diseases.

The crews' quarters are located in the forward part of the ships. Sleeping accommodations are afforded for 16 men by the use of transoms and bunks hinged to the sides. The remainder of the crew occupy quarters just aft of the engine room, which have four stationary bunks and two transoms. These quarters are inadequate, both in size and fittings. The ventilation of these vessels is not satisfactory at any time, but when at sea all ports must be closed to prevent shipping of water. The engine room and forward quarters suffer most under these conditions, and it is believed for the health and comfort of the crew larger and more efficient systems of forced ventilation should be installed. Heat is furnished by a hot-water system. This system is efficient if a sufficiently large fire is kept up in the central heating plant. The only fault with the plant is that the water-heating stove is located in the forward quarters and tends to overheat them. This disadvantage would be negligible if an efficient ventilation were furnished.

The thin wooden decks and hulls are penetrated by small amounts of water in any but the calmest weather; also moisture of condensation collects on the bulkheads and overhead. This condition lessens the comfort of the crew and is detrimental to the resistance for respiratory and rheumatic complaints; bedding is damp and even wet most of the time. It is believed that the excessive moisture could be overcome or at least mitigated by more liberal ventilation, proper interior surfacing, and better deck construction.

The size and design of these vessels cause them to pitch and roll extremely whenever outside of land protection in rough waters, such as the English Channel. To fully understand the motion of one of these vessels one must experience it. Cruising with ports closed as they must be in a heavy sea, the gas fumes combined with the motion of the ship produce seasickness in many aboard, some of whom never become accustomed to it. Fully 50 per cent of the original crews had to be replaced for the reason that they could not adapt themselves to the motion and were completely prostrated while at sea. Many of the men who remained aboard the vessels carried on their duties although extremely nauseated on every patrol. These men should be commended for their courage and tenacity. The exhaustion produced by the loss of sleep and the lack of nourishment during each 4-day period of patrol rendered these men very sus-

ceptible to all infections, moreover it decreased their enthusiasm and had an unfavorable effect on the morale. For these reasons the more susceptible members of each crew were replaced and given duty at the base in every case where it was possible.

Fourteen severe crushing injuries to the fingers, some of them requiring amputation have been treated. These injuries were sustained by hatch covers becoming dislodged while men were entering or leaving the hatches. It is recommended that a dependable automatic catch to hold covers secure when opened be fitted on all hatches. These fittings are badly needed.

Two forms of gas poisoning due to gasoline fumes and vapors have been noted. One form is produced by the products of combustion in the motors and is a mixture of gasoline and lubricating oil fumes. Members of the engine-room force were overcome at various times when the vessels were making full speed ahead on two or all the engines and the "air was so blue you couldn't see through it." The usual symptoms given are these: First, smarting and excessive lacrimation of the eyes, soon followed by a sharp headache; next dizziness; and finally unconsciousness. The men through experience have learned to seek fresh air when the early symptoms are felt, therefore the result of the continued absorption of the fumes has not been observed. After a few minutes in pure air the man usually returns to the engine-room but experiences a dull headache, loss of appetite, and lassitude for 24 to 48 hours. The crews of the vessels are inclined to believe that some men are subject to a chronic form of this poisoning consisting of dull headaches, loss of appetite, and weight, but investigation and observation by the medical officers have failed to substantiate this opinion. Four cases of chronic conjunctivitis were undoubtedly produced by repeated exposure to these fumes.

The other and more serious form of gas poisoning results from the inhalation of gasoline vapor. Two cases have been observed, one of which was fatal. These accidents occurred when men were working in an area where the content of gasoline vapor was high and there was practically no ventilation. The first and fatal accident occurred while the victim was repairing a gasoline line beneath the engine-room plates. His head and shoulders were through a small opening and a stream of gasoline 1 inch in diameter was running into the bilge, passing close by his face. Death had probably already occurred when the body was removed after about five minutes' exposure. Artificial respiration and proper first-aid treatment rendered by the crew were unsuccessful. Following this accident the recommendation was made and put into force that whenever a member of the crew was exposed to concentrated gasoline vapor, as in repairing leaks, working in the bilges, etc., a helper stood close by and carried on conversation with him; if any of the worker's replies were indistinct or if he failed to answer, the helper removed him at once. After the adoption of this precaution one case was admitted to the sick list. This patient was working under conditions approximating those of the first accident when he suddenly became unconscious and was removed to the Royal Naval Hospital, Plymouth, England. The case history sheet of that institution shows that the patient remained unconscious and delirious for several hours and suffered a dull headache and

nausea for two days. The patient's description of his experience was that he felt all right until there was a sudden severe pain in the head followed by unconsciousness. Other less severe cases may have occurred aboard the vessels, but if this is so they have not been reported.

The fumes and vapors from the engine room cause discomfort and aggravate seasickness by penetrating the bulkheads to all parts of the ship. It is believed that a sealing of the bulkheads and a more efficient ventilation of the engine room would mitigate the annoyance and danger from this pollution.

Fires in the engine rooms are frequent because of the highly inflammable fuel and the occurrence of faults in the ignition systems. Instructions were given the entire engine room force to leave the engine room and close all air openings upon the discovery of fire. In instances where this was done the fire has gone out quickly without much damage being done. The tendency of the men, however, is to enter the engine room and put the fire out with chemical fire extinguishers. This practice has led to several being overcome by carbon dioxide gas, but none of them has suffered any serious or permanent effects.

*United States Naval Aviation Base, Queenstown, Ireland.*—The grounds and buildings were formerly occupied by a British encampment. Additional portable barrack buildings, 60 by 20 by 8 feet, were erected, each accommodating 24 men and complying with Bureau of Medicine and Surgery's Bulletin No. 10, division of sanitation. The grounds of the station during the period of commission were well policed and kept in an orderly condition. Upon recommendation of the medical officers various pools in low roadways, etc., around the station were filled in, improving sanitary surroundings.

The water supply of the station until August was not adequate for all needs. A new water system completed at that time proved very satisfactory. Frequent chemical and bacteriological examinations of the water supply were made to determine its potability. The food supply was of excellent quality and prepared in a sanitary and hygienic manner. Weekly inspection of cooks and mess attendants for venereal infection and details of personal hygiene aided in maintaining satisfactory sanitary conditions in the galley and mess hall. Modern latrines with an adequate sewerage system emptying into the bay were built. Garbage from mess halls and galley was placed in metallic containers in a fly-proof garbage house while awaiting removal from the station by a civilian. This method reinforced by frequent flushing out of the garbage house and metallic containers and whitewashing of same proved very satisfactory.

The dental department was established in April, 1918. Lieutenant J. E. Herlihy, Dental Corps, United States Navy, reported at Queenstown on April 10, 1918. Due to the fact that he was the only dental surgeon who was ordered for duty to the naval air stations in Ireland, he was obliged to divide his time between the four stations. He also attended at times the submarine flotilla operating from the south of Ireland. A portable operating equipment was used and though quite inconvenient for the operator it served the purpose for which it was intended. The sick bays on all stations were well designed so as to give the dental operating room a northern light. A hospital corps-

man was detailed permanently to assist the dental surgeon. Among the operations performed during the period of this report may be mentioned: Pulp removed, 355; roots filled, 566; amalgam fillings, 542; cement fillings, 279; porcelain fillings, 179; roots extracted, 232.

*United States Naval Air Station, St. Trojan, France.*—On August 20, 1918, a bomb explosion occurred on this station. A seaplane carrying two 100-pound bombs was on the slip preparatory to taking the water for patrol flight. One bomb fell to the slip-way at the edge of the water exploding, and thereby setting off another bomb attached to the seaplane. There were quite a few officers and men present at the time. Twenty-four casualties resulted, one officer and two men being killed instantly. Two men died the same day after operation.

Two cases with abdominal wounds, one with fracture of patella, and another with a punctured wound of the temporal region were evacuated to the French naval hospital at Rochefort, France. Of these the two with abdominal wounds died a few days later with general peritonitis following intestinal perforation. They had received surgical treatment but did not survive. The other two were given surgical treatment and retained at the hospital for about two months. When they returned to this station they were transferred to the United States Naval Base Hospital No. 5, Brest, for medical survey.

A chief pharmacist's mate who received a compound fracture of vault of skull was operated upon at this station. Four days later he was transferred to the French hospital at Rochefort where X-ray examination could be made. He died two months later from complications of multiple brain abscess and meningitis. The other 14 cases were not severely injured, were treated on the station and all returned to duty in due course of time. Valuable assistance was given to the medical force at this station by the French doctor in charge of the sanitarium on the island. He came to the station immediately with two female nurses and rendered valuable assistance.

*United States Naval Base 20.*—This base at Rochefort, France, has been in operation since February, 1918. A medical officer has been on duty here since May 4, 1918, the average complement being 166 officers and men. The men receive subsistence and live out in town, in hotels, rooming and boarding houses. The rooms are, as a rule, kept clean but are poorly lighted, heated, and ventilated. The food has been the war ration of the French civilian population, supplemented by purchases at the Army canteens and in the shops of the town. The men at this base have been well fed.

The general health of the officers and men on the station has been excellent except during the influenza epidemics and for an unusually high incidence of venereal disease.

It has not been the policy of the commanding officer to make preparations for the care of major cases. Those able to travel were sent to the United States Naval Base Hospital No. 5 at Brest, France, a journey of 36 hours by train. All other acute cases needing hospital care have been entered at L'Hôpital de la Marine, Rochefort. This hospital, built in 1791, is a part of the regular naval service and is conducted by officers of the medical corps. It is a well-organized and well-equipped hospital having the usual surgical, medical, labora-

tory, and special services. It contains 1,000 beds, capable of expansion to 1,500. Except for the acute cases coming from the barracks and the ships of the naval and colonial infantry, and from men on leave in the immediate vicinity, the hospital is largely filled with convalescent surgical cases from the evacuation hospitals at the front. In respect to feeding the service is antiquated and poor. However, the medical officers are all men of ability and, in all essential respects, the treatment and care of all American sailors sent to the hospital have been very satisfactory. The medical officer has been extended every courtesy and the greatest freedom for visiting and following his cases. Previous to 1914 Rochefort was one of the three naval centers in France where instruction was given to prospective candidates for the medical corps. Instruction was given in first-year medical subjects. This medical school was connected with the hospital. It has been discontinued since the outbreak of the war.

*Submarine Chaser Detachment No. 2 (Base 25).*—The experiences of this detachment were varied and interesting, though trying. The liberal Navy ration was not available in many instances because it could not be prepared in rough weather on this type of craft. Corned beef, jam, and biscuit was often the only food available for five days at a time when on barrage duty in the Adriatic or Mediterranean. In port, the diet was as liberal and varied as local conditions permitted. Fresh fruit and vegetables were often unprocurable. In spite of discomforts and privations, the general spirit of the men was exemplary. The health of the personnel was good. Dysentery was a constant menace ashore, and many cases developed among the British, French, and Italian forces. Medical supplies were ample for the needs of the subchasers, but as the U. S. S. *Leonidas* also had to supply the base, economy was necessary. At sea the crews of the chasers suffered universally from constipation, and the supply of salines should be increased for these boats. There was, of course, no opportunity to care for the sick on subchasers, and they were removed to the U. S. S. *Leonidas* except when at base 25, Corfu, where a small sick bay was established. For a five-day duty period on the barrage, one hospital corpsman was assigned to every three chasers and a medical officer to the entire division. When there were sick requiring hospital treatment, they were collected on one chaser and brought to the base.

*United States Naval Air Station, Treguier, Côtes du Nord, France.*—From August 27, 1918, to November 6, 1918, before the dispensary building was available, patients were treated both at the station proper and at the French hospital No. 56, located in the village of Treguier and about one and one-half kilometers distant. During this time three rooms in a French barrack building were assigned to the medical department, one of which was used as a sick bay, one as an office for the medical officer, and one as a dispensary. On November 6, 1918, the medical department moved into the completed dispensary building, consisting of a ward accommodating 18 beds, with six rooms at the forward and four at the rear end of the building. On December 9, 1918, due to the order for demobilization, which necessitated the tearing down of the dispensary building, the medical department moved into another French barrack building,

consisting of a ward accommodating six beds and four additional rooms. There was no difficulty in procuring material and in spite of frequent moves the care the patients received was beyond reproach. All the buildings were heated with coal-burning stoves and at no time was there any difficulty in keeping the wards sufficiently warm. All buildings were lighted by electricity.

*United States Naval Air Station, Wexford, Ireland.*—The facilities for the treatment of the sick were excellent. Two huts 20 by 60 feet each connected in the rear by a passage-way were located to the far and easterly side of the camp and enjoyed the maximum amount of sunshine daily. Each building was adequately supplied with windows, ventilators, and stoves and the floor was covered throughout with linoleum. One building was used for the sick bay proper, with accommodations for 20 patients. The main ward was occupied by 18 beds properly spaced. At one end of the main ward there was a bathroom with tub, stool, and lavatory all connected with running water. At the other end of the ward there were two separate rooms, one an isolation ward with two beds for contagious cases, the other a diet kitchen equipped with cook stove, mess-gear locker, and sink. The other building was divided into separate rooms, one for the medical officer's office; one for the chief pharmacist's mate's office; one for the dental surgeon; one a dark room for the examination of eye and ear cases; one for the medical laboratory; one for the officer's lavatory; one for the storeroom; two for the dispensary; one for the sleeping quarters of the chief pharmacist's mate; one for the operating room, and one for a venereal head.

The whole interior of the sick bay was painted a light green, except for the operating room, which was white enameled. The latter was equipped with close-fitting swinging doors and was lighted with electric cluster globes. The lighting in the ward was arranged so that it did not reflect in the patient's eyes. The operating room was supplied with suitable operating facilities and equipment; hot and cold running water were available in both buildings.

The station began operations on September 18, 1918, when four seaplanes arrived, and up to November 11, 1918, when flying was stopped, there had been neither accident nor sickness among the men or pilots, caused by flying. From a sanitary viewpoint the health conditions of this station were excellent with a minimum amount of sickness at all times in spite of the prevailing inclement weather.

*United States Naval Air Station, Whiddy Island, Ireland.*—The medical department buildings consisted of two 60 by 20 foot barracks, situated at the east side of the station convenient to the hangars, machine shops, etc., and still sufficiently isolated from the station barracks. The first building was partitioned off into medical officer's office, chief pharmacist's mate's office, a venereal room, dressing room, toilet, storeroom, dispensary, operating room, and hospital corpsmen's bedroom. It was connected with the one adjoining by an inclosed passage-way. The second barrack is partitioned off, giving one main ward, containing five beds and a small bedroom, for the hospital corpsmen in charge of the ward.

This arrangement has proven satisfactory in every respect. Nineteen beds are available for patients on the sick list and a few more





OBSERVATION CAMP, U. S. NAVAL TRAINING STATION, SAN DIEGO, CALIF.



can be used if necessary. Only once, during an influenza epidemic, was the number of beds found insufficient, and at that time another barrack building near-by was taken over for a few days for the excess cases.

#### NAVY YARDS, STATIONS, RECEIVING SHIPS, ETC., AT HOME AND ABROAD.

*United States Naval Academy, Annapolis, Md.*—The total admissions and readmissions to the sick list for 1918, as compared with 1917, were 4,155 and 2,517 for diseases; 245 and 207 for injuries, with a total sick days of 8,153 and 2,845, respectively, for the two years. The number transferred to hospital was 2,912, as against 1,430. Influenza in 1918 was responsible for 4,076 sick days; gastro-intestinal diseases (midshipmen only) for 209 sick days, as compared with 460 in 1917. Football injuries (midshipmen only) gave 15 admissions and readmissions, as compared with 60 the year before. The average number of visits made by midshipmen to sick quarters was 137 per day.

Physical examinations were made for civil service, 323; of midshipmen, 1,461; of candidates, 1,035.

There are several points of interest to be noted in the above statistics, as the large number of visits (50,244) of midshipmen to sick quarters, giving a daily average of 137.6, which are classed as dispensary visits in reports of hospitals. It is necessary to record the name of each midshipman, the time of reporting, and the nature of complaint. Most of the complaints are trivial, but it has been found that nothing is too trivial to note, or flarebacks may come, in several different forms, as report for being "absent from recitation on account of being detained in sick quarters," or some question arising in regard to treatment. The majority of the visits are made at morning sick call, the midshipmen of the battalion, who recite at 8 a. m. being first examined by the medical officer, and then those who recite at 9 a. m. It requires considerable tact, judgment, and force to hold this sick call in order to be just to the midshipmen and make no mistakes; on blue Monday it would be very easy to fill every bed in sick quarters and the hospital.

There was a daily average of 20 house visits by the medical officers, due partly to the increased number of officers attached to the academy and to the increase of sick with influenza. The number of dispensary visits, 4,972, and prescriptions filled, 11,311, indicate in a measure the work done among the families of officers and enlisted men. These families live at the Academy, in Annapolis and its suburbs—Wardour, West Annapolis, Cedar Park, Germantown, and Eastport—making a wide field for medical attention. The stations for midshipmen and enlisted men are also widely separated as Bancroft Hall, Marine barracks, station ship and ships in the harbor, rifle range, high-power radio station, and dairy farm, making in all about 5,000 men, women, and children to be attended and requiring a large personnel of the medical corps and a quantity of material. There has been no shortage of either.

The Bureau of Medicine and Surgery furnished a special sanitary unit to investigate the threatened outbreak of diphtheria among the

midshipmen in Bancroft Hall and the enlisted men on board the station ship. The bureau also furnished a special unit of hospital corpsmen from an over-seas detail to render assistance during the prevalence of influenza. Such elasticity of detail is especially valuable in emergencies.

It is noted that the damage due to football as measured by sick and excused days for midshipmen is much less than the previous year, due to the canceling of games on account of influenza, and to the fact that there were no games with the strong teams of the large colleges.

During the year the two new wings of Bancroft Hall were completed, increasing accommodations to accommodate 1,100 more midshipmen. The indirect lighting system was installed and the rooms painted as recommended by Commander G. B. Tribble, Medical Corps, United States Navy. The result is most satisfactory. The mess hall, kitchen, and cold-storage plant have been enlarged and modernized, including ventilation and the tiling of the floors. The tiling was not extended, as recommended, up the walls of the milk and butter rooms, but the hard finish is dust proof. The garbage room has been found too small and inadequate for handling the large quantity of refuse. As the garbage is transported to the Government farm and fed to the hogs, requiring several handlings, a sterilizing plant on wheels was recommended from an economical point of view and for general cleanliness and sanitation.

The dairy has continued to furnish about 800 gallons daily of good, pure milk. On account of the shortage of the milk supply in the city and the urgent need of milk for children, the commissary officer has, upon the senior medical officer's recommendation, allowed milk for children in the families of officers and enlisted men.

Two artesian wells have been bored during the year for an additional supply of water. These wells are about 60 feet deep. The water is potable, being free from organic matter but contains a large quantity of iron salts, which persist in spite of sedimentation and filtration, rendering it very unsightly for drinking purposes, and readily stain porcelain and fabrics.

Four hundred and twenty-five Naval Reserve men were stationed on the rifle range as instructors in target practice, and 8,287 soldiers, mostly from Camp Meade, have been taught how to shoot at this range. The sanitation of the range has vastly improved since the start, when 750 men were sent there without any preparation having been made for their accommodation. The health of all the men stationed there was excellent. This was especially noticeable while they were living under canvas during the cold, severe weather of the winter of 1917-18. It was attributed to life in the open, for sanitation was difficult to maintain, especially on account of the shortage of water. The only bathing facilities were at the armory in Annapolis, 3 miles distant. The artesian well which was contracted for, was partly bored but never finished, and the only supply for all purposes was a shallow well, the water of which was not pure though free from colon bacilli. Many recommendations were made for the cleanliness of the range and no disease occurred which

could be attributed to poor sanitation, but the place never had a smart appearance.

*Navy yard, Boston, Mass.*—A board's recommendation that a competent illuminating engineer should take charge of the installation of improved lighting in yard buildings has been accomplished, the department of public works in the yard having such an engineer constantly in its employ whose services have been available for this work. Illumination and ventilation of the machinery building will be greatly improved by work now under way, which consists of putting over a large part of the building a saw-tooth roof with movable glazed sash in the windows. Scientific, artificial illumination has been installed in the machine shop in this building in accordance with the plan recommended by the board. Improved artificial illumination, indirect, has been installed in the accounting office and the hull division drafting room in building No. 39 and in the sail loft in building No. 33.

The yard restaurant used by civil employees and officers has been enlarged by a two-story brick extension and is now capable of serving about 400 hot dinners daily, in addition to what is served at a lunch counter. The kitchen and toilet facilities for employees of the restaurant have been much improved. In the lunch room established by the commandant for the use of the naval personnel of the yard and civilian clerks excellent service has been rendered. A rest room has been provided in the central telephone building for the use of the operators.

A large wooden washhouse has been built adjoining the machinery building, with modern arrangements for washing in running water from faucets mounted over long troughs, both hot and cold water being provided. There are facilities here for 100 men to wash at a time. Throughout the year numerous new installations of wash bowls have been made in various buildings or in annexes to buildings constructed for the purpose. At the time the last census of washing facilities was reported the number of washbowls in the yard was 1 to every 12 persons. The additions made during the past four months have increased this proportion until now there is 1 washbowl for every 11 persons throughout the yard.

Several thousand new steel clothes lockers of the improved ventilated type have been installed in the yard, and at the present time all necessities of this sort appear to have been well met, though it is probable that a few more will be called for before conditions are entirely satisfactory.

The contract for the enlargement of the dispensary building was awarded to the department of public works on its bid of \$35,000, which undertook to complete the additions in 100 working days. Failure to complete and equip the building within the specified period was due to causes beyond the control of the department of public works, i. e. certain subcontractors did not deliver material on time. It is hoped that the deficiencies may be supplied, the work completed, and the additions ready for occupancy by the middle of February.

*Receiving Ship, Boston, Mass.—*

Personnel.	Jan. 1- Mar. 31.	Apr. 1- June 30.	July 1- Sept. 30.	Oct. 1- Dec. 31.	Average and total.
Officers.....	49	28	48	57	45
Men.....	3,608	2,489	3,885	5,065	3,737
Sick days.....	922	1,515	589	1,999	5,061
Mortality.....			9	1	10
Invalided from the service.....	9	8	5	5	27
Epidemics.....			1		1
Transferred to naval hospital.....	580	212	899	382	2,073
Transferred to Gallipoli Island.....			177		177
Antityphoid inoculations.....	1,174	480	263	157	2,074
Vaccinations (cowpox).....	367	314	249	163	1,093
Average complement of prisoners.....	39	48	32	34	38
Men examined for transfer to inactive list.....				874	874

## Percentage of sickness:

	Per cent.
Jan. 1 to Mar. 31.....	0.25
Apr. 1 to June 30.....	.61
July 1 to Sept. 30.....	.14
Oct. 1 to Dec. 31.....	.38

It will be seen from the foregoing table that the health of the officers and men attached to this receiving ship has been very good during the past year, except during the influenza epidemic. Many of the cases credited to this ship were, in fact, contracted at other ships or stations, or while the men were on the way to this ship. The average number of men for the year was 3,737, but the number passing through this receiving ship each year vastly increased the personnel, as will be shown by the following figures of transfers by quarters:

Jan. 1 to Mar. 30.....	6,600
Apr. 1 to June 30.....	4,820
July 1 to Sept. 30.....	6,480
Oct. 1 to Oct. 31.....	5,775

There were 6,760 men attached to this ship on December 31 so that 29,935 men were actually under the care of its medical department for varying periods during the past year. The percentage of sickness consequently appears greater than would be the case at a station or on a ship having more permanent personnel.

Commonwealth Pier, which is State property, was formerly used as a station for several transatlantic liners, and as a storehouse. It is built of concrete, and is two stories above the ground level. A causeway connects the upper level with Summer Street, the outer end of the pier extending into Boston harbor. There are two wings and a central section. The entire pier has been, during the greater part of the past year, devoted to Navy and Army needs. Those parts which were not formerly occupied by the receiving ship were at first used for storage purposes by the State, but have since been turned over and utilized by the Naval Overseas Transportation Service and the Naval Overseas Supplies and also as an Army warehouse.

Radical changes have been made during the past year in the sick bay. A large ward was obtained on the upper deck 30 by 75 by 20 feet. It contained 20 beds, which number can be increased somewhat if found necessary. This has been found adequate for all ordinary purposes, as the prevailing custom is to transfer the seriously ill to the United States Naval Hospital, Chelsea, Mass. One

corner of the ward is set aside as a small operating room where minor operations are performed. Toilet and shower facilities are adequate. The ventilation, heating, and lighting are exceptionally good, although it is somewhat difficult to keep the wards clean because of the close proximity to a large coal pocket which is only 150 feet away.

The dispensary is located on the upper deck and is of the same size as the storeroom. This is too small to accommodate 100 men, the average number reporting at sick call, so that some delay is frequently experienced in caring for dispensary cases. Owing to the structural details it is impossible for more than one doctor to work at sick call to any advantage, although others are always in attendance.

Some of the first cases of the recent pandemic of influenza in this country occurred at Commonwealth Pier on August 27, 1918, when two men reported at sick call with what was first thought to be the usual type of the disease. On the following day, 8 cases were reported, and, on succeeding days, 53, 81, 106, 59, 119, 75, 17, 31, 23, etc. These figures are quoted to show the rapidity with which the infection traveled at this station. On August 29, 1918, when 53 cases were observed, a report was made to the commanding officer and the district medical aid, that cases of influenza were unusually prevalent aboard this ship, and that it was thought that an epidemic was in progress. Immediate steps were taken to relieve the congestion at the pier, and on September 12, 1918, an outdoor camp was started at the militia grounds at Framingham, with a working party of 25 men.

Subsequent transfers were made as rapidly as possible. The value of outdoor treatment and living under canvas as a prophylactic can best be shown by the comparison of the percentage of the number of the men contracting the disease under different conditions. Between the weeks of September 21 and November 9, there was an average of 2,045 men quartered at Framingham, the average at the pier being 2,325 for the same period. During these weeks, 11.05 per cent contracted the disease at the pier as compared to 2.05 per cent at Framingham. The total number of cases for the entire ship during the epidemic was 984, the climax being reached on September 2, 1918, with 119 cases.

*Emergency medical storeroom, first naval district.*—Many features of war conditions demonstrated the desirability of establishing an emergency medical storeroom in Boston. These were the unprecedented increase and expansion of personnel and naval units; the subsequent epidemics, embracing depletion of medical supplies at the various section bases, which, at times, necessitated the purchase of items in the open market; the ever-increasing requests for replenishment of stores; the overwhelming demand on the supply depot at Brooklyn, etc.

The emergency medical storeroom was located on the seventh floor of the United States appraiser's building, Atlantic Avenue, Boston, Mass.

Requisitions accomplished:

Oct. 1, 1918, to Dec. 31, 1918	172
Jan. 1, 1918, to Feb. 8, 1919	84

Total	256
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*United States Naval Laboratory Unit, 261 High Street, Brooklyn, N. Y.*—The United States Naval Medical School Laboratory unit No. 4 was ordered to New York on February 2, 1918. The unit consisted of two medical officers, Lieuts. L. E. Mueller, and R. C. Satterlee, Medical Corps, United States Navy, and six men, two of whom were soon detached for other duties. The primary reason for ordering the unit to New York was an outbreak of cerebro-spinal fever at the receiving ship, New York. For several months the work consisted almost entirely of the detection of meningococcus carriers. Cases occurred also at City Park Barracks, Brooklyn, N. Y., and on board the U. S. S. *Agamemnon*, the U. S. S. *Gloucester*, the U. S. S. *Denver* and several other ships and stations. Carriers were isolated in each of these units and although in most cases it was impossible to ascertain, with what result, we understand that no further cases of cerebro-spinal fever occurred on the U. S. S. *Agamemnon* after the carriers aboard were detected and removed. A total of 3,132 meningitis cultures were taken and 311 carriers were found or 10 per cent.

Notified of an outbreak of diphtheria at City Park Barracks, Brooklyn, N. Y., by the medical aid to the commandant, steps were taken immediately to culture the men involved and the carriers were detected and isolated. The total number of Schick tests done was 7,772, but, unfortunately, due mainly to the sailing of transports, statistics as to the number of positives were obtained in only 6,263 cases, of whom 1,102 were nonimmune, or a percentage of 17.5 per cent.

*United States section base, Cape May, N. J.*—The health of the men and the situation of the base will compare favorably with any station anywhere. During the recent epidemic of influenza throughout the country the percentage of cases here was appreciably less than 10 per cent and not a case from the section base or rifle range died during this epidemic, although there was one death resulting from a sporadic case which occurred in December. The situation afloat was somewhat different due in all probability to the nature of the living conditions on the small section patrol boats and submarine chasers and mine sweepers, but here again the percentage was less than 10 per cent and the mortality rate quite small and many of these boats escaped without any cases of influenza. Venereal disease is rare, there seldom being more than one man on the venereal list at a time. Independently of the influenza epidemic there have been only four cases of pneumonia since the base was established in May, 1917.

*Wissahickon Barracks, Cape May, N. J.*—The dispensary building contains two wards, two isolation rooms, two toilets, and one bathroom for patients, one diet kitchen, a laboratory, medical store-room, offices for the medical officer and dental officers, quarters for the medical officer of the day, rooms for the pharmacist's mates, records, sick call, assembly and dispensary and venereal treatments. Each compartment is of ample space and equipment heated by steam.

Average daily personnel for the year.....	1, 773
Total admissions for the year.....	1, 732
Annual rate of venereal cases per thousand.....	71.06
Total number of deaths for the year.....	2
Cowpox vaccinations for the year (number of men).....	4, 702
Typhoid prophylaxis for the year (number of men).....	7, 146

*Charleston, S. C.*—At the outbreak of the war a great increase of the personnel and of the work done by the yard increased the sanitary problems so much that a medical officer was detailed as sanitary inspector, to devote practically his entire attention to that subject. This service has been maintained throughout the present year with excellent results. This officer makes frequent, in fact in many parts of the yard daily, inspections, and regular weekly and monthly written reports.

During the year the civil employees have numbered between 4,000 and 5,000, and about 1,000 of these are women employed at the naval clothing factory. They constitute a special medical problem.

The first-aid room at the dispensary is one of its most important features and it is largely maintained for the civil employees of the yard, although the sick call for the marine barracks is also held there at 9 o'clock in the morning. Some idea of the amount of work carried on in this first-aid room may be given by stating that during the last year in the neighborhood of 20,000 examinations, treatments, and dressings were done.

The number of venereal cases has been very small. The repression of the houses of prostitution in the city of Charleston and the regulations in regard to the sale of liquor to men in uniform, inspection and education of the personnel in regard to venereal diseases, and general good standard of morals observed in the personnel, have been factors in attaining this very desirable result.

The medical officer of the yard has closely followed the policy of the United States Employees' Compensation Commission in giving complete medical and surgical services, including hospital facilities to all injured civil employees. A considerable number of the injured requiring hospital treatment have been taken into the ward and have received the same care as the personnel of the Navy. The results of this policy have been most gratifying, not only in the injured cases but in increasing the contentment of the civil employees. They know that if they are injured they will receive treatment in the naval hospital free of charge and have the same attention as if they formed a part of the enlisted personnel of the Navy.

*Naval training camp (extension), Charleston, S. C.*—The average complement for the year was 3,185 and the total number of men received 12,143. The new detention barracks consist of 12 two-story buildings accommodating 600 men, in groups of 48 men, 12 to a section. Two sick bays have been in operation in addition to the three in use last year. The camp has accommodations for 160 sick. During the height of the influenza epidemic the gymnasium was utilized and 91 hospital beds, all properly set up and screened, were made available on 24 hours' notice. A new incinerator, costing \$8,421, has been in operation for some time.

The absolute need of a proper sanitary water supply led to a loan being negotiated by the city of Charleston from Army and Navy appropriations, and a filter tank with a capacity of 2,000,000 gallons has been installed.

*Cavite, P. I.*—The surgeon of the yard comments on the location of officers' quarters in the midst of the yard workshops and suggests their removal elsewhere; he suggests, too, the advisability of painting buildings some other color than white to reduce as far as possible

the dazzling effect on the eye. The tour of duty in the Philippines should be limited to two years. While some people can stay in the Tropics indefinitely, the majority of foreigners become pale and irritable and show markedly lowered resistance to disease. He recommends that American enlisted men be forbidden to ship over on the station. Long residence in the east appears to reduce the moral as well as physical tone. With the lassitude and enervation induced by long stay in the Tropics there is an increased disposition to indulge in alcoholic beverages which stimulate a flagging appetite and give temporary relief to depression of spirits. Association with Filipino women becomes more and more intimate the longer the sojourn among them and common-law marriages are the result.

Recruiting has been one of the principal features of the work of the surgeon of the yard during the year. There were 5,226 applications for original enlistment and 142 for reenlistment with 1,392 acceptances. During June, July, and August, 1918, 4,000 Filipinos applied for enlistment as mess attendants.

In the native clinic there were 1,500 requests for treatment.

With an average of 2,090 men at work daily in the navy yard there were not more than 10 cases of severe injury and 1 death.

Sanitary work among the natives of nearby towns and districts is attended with great difficulty, owing to their indifference to reform. In Cavite proper restaurants and ice cream parlors are well conducted, because they depend for patronage largely on men of the Navy and Marine Corps and whenever conditions are unsatisfactory as to sanitation enlisted men are forbidden to patronize them.

The number of venereal cases has been reduced by apprehending the infected women of dance halls, etc., and sending them to hospital for treatment until cured. Failure of the men to employ prophylaxis after exposure is punished. Cholera has been prevalent in the Province and throughout the islands, but only two cases developed in Cavite. Influenza, too, has been general in the native population and in many villages there were not enough well people to bury the dead. There were no deaths from this disease among the personnel of the naval station.

The dental surgeon treated 213 persons during the year and went to Peking, China, on temporary duty to attend to needs of the Marine Corps contingent there stationed.

*United States Naval Auxiliary Reserve School, Municipal Pier Chicago, Ill.*—The original school comprised 300 men quartered on the lower deck. The mess hall and sleeping quarters were combined. The mess hall accommodated approximately 470 men. On March 29 permission was obtained to use 400 feet on the main deck, in addition to existing space, and all of the former offices of the Northern Michigan Transportation Co. on the upper deck. Sleeping quarters for the men were also obtained on the upper deck. The original school has been enlarged so that it now comprises approximately 2,000 square feet on the upper and lower decks of the south section of the pier.

The sick bay is located east of the executive office. It consists of doctor's office, record office, dispensary, operating room, ward, storeroom, linen room, bag room, head and venereal head. It can accommodate and properly care for 150 patients. Diet for patients in



the ward is prepared in the main galley and carried to the sick bay in covered food containers. Heat is supplied by one coal stove, five gas water-radiators, and two gas radiators. This method of heating is expensive, and in very cold weather difficulty may be experienced in maintaining the proper temperature. The lighting and heating of the sick bay are entirely satisfactory. Hot and cold running water are supplied in the dispensary. The venereal head is equipped for and supplied with hot and cold running water, and is well lighted and ventilated. The head is equipped with two hoppers, two lavatories (hot and cold running water), and two shower baths (hot and cold running water). Heat is secured from a gas water-radiator. The lighting and ventilation of this head are good. The floor of the entire sick bay is of concrete.

*United States Auxiliary Reserve, Cleveland, Ohio.*—The personnel consisted of 20 officers, 2 of whom were medical, and about 1,000 men, who were constantly changed. A man would be on the station about two weeks, then on a Lake boat for eight weeks, and finally on the station about two weeks before being returned to Chicago, Ill. Throughout the year about 3,500 men were handled. During the season about 700 men were constantly on the Lakes in training, and about 300 to 400, including ship's company, were on the station. A draft of about 100 men was received weekly from the United States Naval Auxiliary Reserve School, Municipal Pier, Chicago, Ill., and was assigned to ships, a draft of the same number being returned the same day.

The sick bay is heated by furnace and by gas grates, and all that is true of the rest of the barracks is true of it. Our excess of severe cases is not treated here but is sent to the United States Marine Hospital, Cleveland, Ohio. Owing to the transient character of our enlisted personnel a venereal lecture was given each Friday night immediately upon the arrival of men at the station. Of necessity some men heard this lecture four or five times. The disease was made as unattractive as possible by emphasizing consequent loss of pay, loss of liberty, and no advancement in the course. Splendid cooperation was shown at all times by the charity and city hospitals, Cleveland, Ohio. When the United States Marine Hospital was filled the first two hospitals mentioned took in our patients in preference to the patients sent by their own staff, and they also gave us the fullest use of their laboratory facilities.

*United States Naval Air Station and Submarine Base, Coco, Solo, Canal Zone.*—This station has been in existence about one year and during that time has rapidly grown in every respect. Many buildings have been constructed and many important and necessary sanitary measures have been undertaken and completed. Sanitation directed toward the prevention of malarial fever has been the main consideration and at the present time the entire reservation has been completely filled with coral fill from the bay. The complement has been continually changing due to the arrival and departure of submarine divisions and drafts of men. The average complement is about 950 men, excluding officers.

The general health has been excellent, considering the prevalent malaria and the influenza epidemic. The malaria is due to the large area of swamp land immediately adjoining the station. This area

is a prolific breeding spot for anopheline and culicine mosquitoes and is the sole cause of fever on this station. An appropriation totaling \$900,000 has been requested and granted for the purpose of filling in this area with coral fill. The Army, it is understood, is to bear one-half of the total sum and the Navy the other half. It is further understood that it will take approximately 33 months to complete this work with two of the largest Panama Canal dredges working day and night.

Malaria is continually present and all means of preventing the same have been taken. All accumulations of fresh water are immediately oiled. All buildings are screened and screen doors are kept closed at all times. Head nets and gloves are worn by men on sentry duty and the entire reservation has been filled. Mosquito catchers make regular inspections and in spite of every preventive measure their quests have always proven fruitful for both anophiline and culicine mosquitoes. Many were found in the buildings in the beginning, but constant efforts have greatly lowered the percentage of late. The source of the mosquitoes is the area immediately adjoining the station.

Sand flies are very prevalent at times and infection often results from scratching their bites. They can enter the finest wire mesh and cause a bite which itches intensely for some time afterwards. It is thought that the filling of the land with coral fill will prevent their prevalence in a large measure.

During the year there have been 82 cases of malarial fever occurring as follows:

		Cases.			Cases.
1918.			1918.		
January.....		1	August.....		9
February.....		2	September.....		6
March.....			October.....		13
April.....		1	November.....		6
May.....		8	December.....		21
June.....		7			
July.....		4	Total.....		82

*United States Naval Detention Training Camp, Deer Island, Mass.*—The camp is located on Deer Island, which is in Boston Harbor, about 5 miles out from the city. The water supply and sewerage system are part of the metropolitan system, which is noted for its sanitary excellence. The greater part of the garbage is disposed of at the piggery of the city prison, the remainder being burned. The group of buildings comprises four large brick structures formerly occupied by the city prison, with the exception of a frame guard barracks built by the ship's company. They are all well lighted, heated, and ventilated. The largest building contains 500 cells, and is occupied exclusively by detentioners (men awaiting trial or sentence). It contains also a large recreation hall and wash room. The main building is T-shaped, the central part being occupied by offices (medical and dental and the dispensary), officers' quarters, and wardroom. Two wings are occupied by 300 cells for the probationers (younger boys undergoing probationary training). The third wing is occupied by the galley and mess hall, recreation hall

and sick bay. The sick bay is on the top floor and is well isolated. It consists of two large wards having 10 beds, and small rooms containing two beds used for infectious diseases or patients seriously ill. When the occasion demands an isolation ward containing 15 beds is available in a separate wing of the hospital building of the city prison. A third building is occupied by the ship's company exclusive of guards, and contains 80 double-deck beds. The fact that the greater part of the personnel sleeps in separate cells may be responsible for the notably low incidence of infectious diseases on the station.

The sick are practically never transferred to the naval hospital except where a major operation is thought necessary. There have been six deaths; five from pneumonia, and one from acute nephritis. A few scarlet fever cases and one typhoid fever have occurred recently. The percentage of prisoners suffering from venereal disease is appalling, but perhaps not larger than should be expected among the type of men who desert. A large part of the work of the medical officers consists in conducting medical surveys, an overwhelming majority of the prisoners being really unfit for service due to an unusual array of physical disabilities and to various mental disorders, notably epilepsy, imbecility, drug addicts, and chronic alcoholics; a great number of borderland cases in the general group of psychoneuroses, and a few cases of actual psychoses.

A very thorough statistical study has been carried on for the past several months of the general subject of desertion, especially concerning its medical aspects.

*Naval training station, Great Lakes, Ill.*—The average complement of the station for the four quarters of 1918 and for the year, with the corresponding numbers of medical and dental officers and of hospital corpsmen are as follows:

	First quarter.	Second quarter.	Third quarter.	Fourth quarter.	Year.
Complement.....	23,000	26,683	43,705	37,545	32,733
Medical officers.....	41	52	63	66	55
Dental officers.....		26	37	50	38
Hospital corps.....	150	262	440	749	400

The highest average weekly complement was reached during the fourth week in August with 47,300 men. While at times there appeared to be a slight shortage in medical personnel, a temporary redistribution of duties usually resulted satisfactorily. The grouping of adjacent regiments into brigades for medical administration and the temporary reappointment of the personnel among the several regimental dispensaries by the brigade surgeons greatly facilitated the handling of emergencies.

At present there are 15 dispensaries in operation. Additional dispensary buildings are nearing completion in the Thirteenth, Eighteenth, Nineteenth, Twentieth, Twenty-first, and Twenty-second Regiments, and substantial additions are being made to nine other dispensary buildings to provide more room for the isolation of contagious cases in the housing of hospital corpsmen. The type of sick bays constructed at different periods has varied somewhat with an apparent evolution toward a large two-story building having a maxi-

num capacity for 39 ward patients, 60 isolated patients, and 20 hospital corpsmen. Changes and improvements have been made from time to time in older dispensaries to meet new conditions. A new two-story medical headquarters building was completed in September and at once occupied. This houses the senior doctor's office, record office, medical examining board, medical storeroom, and the main dental offices and greatly facilitates coordination among these several departments. Whenever the sick quarters were found inadequate, as during epidemics, the line officers gave hearty cooperation in turning over adjacent barracks for the use of the medical department, especially valuable in housing mumps cases early in the year and influenza patients during the autumn epidemic. In outgoing detention, venereal patients who accumulate there are all transferred to one or more dormitories, thus avoiding the necessity of setting aside lavatories and stools in the toilets throughout the regiment for the use of venereal cases. This arrangement has proved very satisfactory to both the medical and regimental officers.

In the camps constructed during the latter part of the year the prevailing type of barracks has been the two-story H-type. In the Sixteenth Regiment these are divided into four dormitories each housing 25 men and equipped with heads and a scullery for the sterilization of mess gear. This segregation is believed to keep the spread of infectious diseases at a minimum. All barracks are now equipped with muslin "sneeze screens" placed between adjacent hammocks. The minimum amount of ventilation at night is regulated by the use of ventilation boards and as much more ventilation as is desired may be secured by the men themselves. The drinking units, consisting of a tin cup and chain immersed in a bucket of formaldehyde solution, have everywhere been replaced by sanitary bubbling fountains. Four new swimming pools of 75,000-gallon capacity have been placed in operation. The water is in constant circulation and is filtered and sterilized by violet ray once in 24 hours. They have proved very satisfactory, and are economical of water.

For the purposes of sanitary measures and inspections the station was divided into seven districts, in each of which a group of hospital corpsmen made daily inspections and carried out sanitary measures under the direction of the sanitation officer and his assistant, who covered the station daily. In addition to the customary sanitary activities on the station (including oversight of the disposal of garbage and sewage, water supply, sterilization of mess gear, and inspection of food) sanitary measures were promulgated within a zone of 2 miles surrounding the station. The general sanitary condition of the station was at all times satisfactory. During the winter months the medical officers in each regiment were made responsible for the local sanitation. In order to stimulate a general interest among officers and men in improving the sanitation of the station, a system of grading the different regiments each week according to the sanitary findings was devised and the scores published in the Great Lakes Bulletin.

This idea was further developed by publishing regimental scores based on the pro-rata admission to the sick list, with graded penalties for quarantinable diseases. Frequent articles by the senior medical officer on personal hygiene and the prevention of disease were also

published in the station paper to educate and interest officers and men in keeping well.

*Guam, Ladrones Islands.*—Influenza was brought to the island by the Army transport *Logan* from Manila, P. I., October 26, 1918, and lasted about six weeks. About 95 per cent of the personnel was affected, with only four deaths—one American and three natives. Quarantine was raised December 20, 1918. About 1,300 cases were treated in the native clinic. A total of about 8,000 patients applied for treatment at the dispensary and dressing stations during the year.

The school for hospital corpsmen was in session throughout the year, except for a few weeks following the typhoon of July 6 and during the epidemic of influenza in November and the first two weeks in December.

During the year a mortuary for the hospital was completed and the burned building at Tumon rebuilt of concrete. Considerable damage was done to all hospital buildings by the typhoon. All damage has been repaired except at the quarantine station on Cabras Island. Repairs at the quarantine station were started but interrupted by the epidemic of influenza.

Seven medical officers are on duty in Guam, all stationed in Agaña, at the hospital, except one who is stationed with the marine detachment at Sumay. This gives, besides the commanding officer and the executive officer, one officer for each ward and one for the laboratory. The officer in charge of the laboratory is also the quarantine officer (boarding officer) and in charge of the X-ray room and autopsies. All junior medical officers are deputy health officers.

There are 12 native nurses, including the matron in charge, on duty at the hospital. Eleven of them are maintained by the leper and special fund, and 1 by the Susana Hospital. After a period of training of two years these nurses are licensed as midwives. They are permitted to charge \$2.50 if holding a district license and \$5 if holding a general license for attending a labor case. They do very good work and are an undoubted blessing to the natives and afford a nucleus for the dissemination of at least a moderate knowledge of sanitary rules. The Navy nurses give these nurses class instruction in the three R's. It is remarkable how they adapt themselves to the work.

In regard to gangosa the following figures have been collected:

Remaining last report.....	367
Admitted .....	4
Died .....	24
Remaining .....	347

There are 12 dressing stations throughout the island. Hospital corpsmen are ordinarily detailed at seven of these stations. At present there are three vacancies, owing to deficiencies in the complement. At the five remaining stations first aid is administered by the native school teachers. Their work has been satisfactory. Hospital corpsmen on duty at these out stations are required to minister to the sick, make sanitary inspections, see that sanitary regulations are carried out, and submit written reports to the health officer twice a month or oftener if necessary.

Dental work among the school children is to be taken up in the near future. It is planned to establish an office in one of the school

buildings and have one of the dental officers devote about half his time to caring for the teeth of all children who require treatment. In addition to this it is planned to educate the children on the subject of oral hygiene by lectures and toothbrush drills to be given in the classrooms.

*United States Naval Station, Guantanamo Bay, Cuba.*—During the past year the health of the station has been excellent. There were 824 admissions to the dispensary with a total of 9,772 sick days. This includes all admissions for the entire station and those admitted from ships coming into port and Marines doing duty in Cuba or stationed at Deer Point. There were 51 major operations and over 75 minor operations performed on the naval personnel, with probably an equal number among the civil employees.

There were only two deaths during the entire year, one from a stab wound received while on liberty in Caimanera. The cause of death in the other case was uncontrollable hemorrhage in the case of a Marine who was a hemophiliac. On January 21, 1918, this man was struck on the nose by a batted baseball. The hemorrhage due to this injury was so severe that it became necessary to pack the anterior and posterior nares, which only controlled the hemorrhage for a short time. Serum was then administered and later the left facial artery was ligated and the nares were repacked. Finally, upon recurrence of severe hemorrhage the left external carotid was ligated, under ether anesthesia. Hemorrhage recurred in about 12 hours and the patient died. Autopsy showed that the left lateral cell mass of the ethmoid had been shattered.

While the admissions for malaria for the previous year were few, there has been a decided decrease in this disease during the past year due to the fact that there has been very little rainfall and the systematic campaign instituted against the malarial mosquito was continued. There were only 35 admissions for malaria during the entire year.

The new dispensary is rapidly nearing completion. It is a two-story building connected to the largest of the old buildings, which has been remodeled and will contain one large ward, one private room, linen closets, X-ray and developing rooms, and lavatory.

The remaining building, which was originally the dispensary and is connected by a corridor to the kitchen, will be converted into quarters for the hospital corps and convalescent patients and several storerooms. The capacity of the new dispensary will be 50 beds, which could be expanded to 75 by using the porches and corridors. The hospital corps quarters will contain 27 beds.

The dental office has been moved to the new building and is well located for the work. The entire naval personnel was inspected twice during the year by the dental officer and 2,152 treatments administered. There were 518 dental cases completed, as reported on the usual form.

*United States Naval Proving Ground, Indian Head, Md.*—A fairly satisfactory sanitary condition has been maintained. The great difficulties in the work are the indifference of some of the contracting firms, the floating type of employee, and the absence of any absolute control. A sanitary board was appointed about June 15, composed of the medical officer, commanding officer of marines, and the civil engineer of the station. A sanitary survey was made and a report

sent to the commanding officer on June 21. All recommendations made by the board were carried out. The senior medical officer was made sanitary officer and given a work gang of about 15 men with teams and drivers to carry out necessary sanitary work.

This has included clearing away brush around the camps, ditching stream beds, cleaning up and burying old can dumps, as well as the collection and disposal of garbage from the entire station. The garbage has been burnt on the brush piles, but a temporary incinerator is being constructed to take care of it. A regular incinerator plant with a can-cleaning appliance has been requested. This is badly needed and will be more needed as time goes on, because the station is growing and the number of civilian quarters has been greatly increased.

*United States Naval Air Station, Key West, Fla.*—A sea plane, F-type, has been assigned to the medical department for use in rescue work. It is equipped with a stationary stretcher, the frame of wood, the body of chicken wire, three belts being attached for securing the patient. The cockpit of the body holds the blankets, first-aid pouches, and tools for disentangling the victim of an accident. In addition to the pilot a medical officer or hospital corpsman is assigned to the sea plane. A motor boat able to develop a 25-knot speed is also in readiness equipped like the plane, but it is not so efficient in shallow water.

*United States Naval Air Station, Miami, Fla.*—The average complement for the year was 1,082, with a percentage of sick of 2.37. There were 20 deaths during the year, 11 of which occurred during the influenza epidemic; 6 were the results of seaplane accidents; 2 were due to peritonitis, and 1 to lobar pneumonia. The mortality rate was 19.4 per thousand.

The sanitary condition in the neighborhood of the station and in the city of Miami is, as a whole, good. The senior medical officer in conjunction with the city health officer has made several inspections of the soda-water fountains, cafés, meat markets, produce houses, and barber shops and has given his cooperation in trying to improve the sanitary condition of some of these places.

The buildings in which the men are quartered are two-story frame structures. They are 8 in number, all well screened and well lighted and sufficiently ventilated, each barrack accommodating about 160 men. The men sleep in double-deck beds so arranged as to allow an interval of about 5 feet between heads. The bunks were first equipped with thick husk mattresses, many of which became infested with bedbugs. Fumigation and other disinfecting measures at our disposal failed to eradicate them and many of these mattresses had to be discarded. They were replaced by hammock mattresses which are more easily cleaned and aired and do not harbor the bugs.

The dispensary is situated near the entrance. It is a two-story frame structure, on the ground floor of which are located offices, dispensary and laboratory, operating room, examining room, dentist's office, and one private room, diet kitchen and bath, and a ward large enough to accommodate 12 beds with additional space on a screened porch for 4 more beds.

Our sick list has often exceeded the number of beds, and it has been necessary to have patients turn in in the barracks in order to make room in the sick bay for more serious cases. In case of

emergency patients have also been taken to the new Miami City Hospital. Patients that could be transported were sent to the United States Naval Hospital, Key West. During the year 55 such cases were transferred.

There have been during the year 27 cases of injuries and 6 deaths as the result of crashes in seaplanes. The causes of death as revealed by autopsy were: Fracture, base of skull, 3; intracranial injury, 1; fracture, sixth and seventh cervical vertebrae, 1; fracture, sixth cervical vertebra, 1.

A watch is maintained on the beach at all times during flying hours. A hospital corpsman well trained in first-aid methods and equipped with first-aid material stands by in a sea sled which is used solely for rescue work. When a plane falls the man on watch in the observation tower immediately signals the sea sled and at the same time notifies the officer of the day and the medical officer in the dispensary by telephone; the ambulance at once proceeds with a medical officer to the beach.

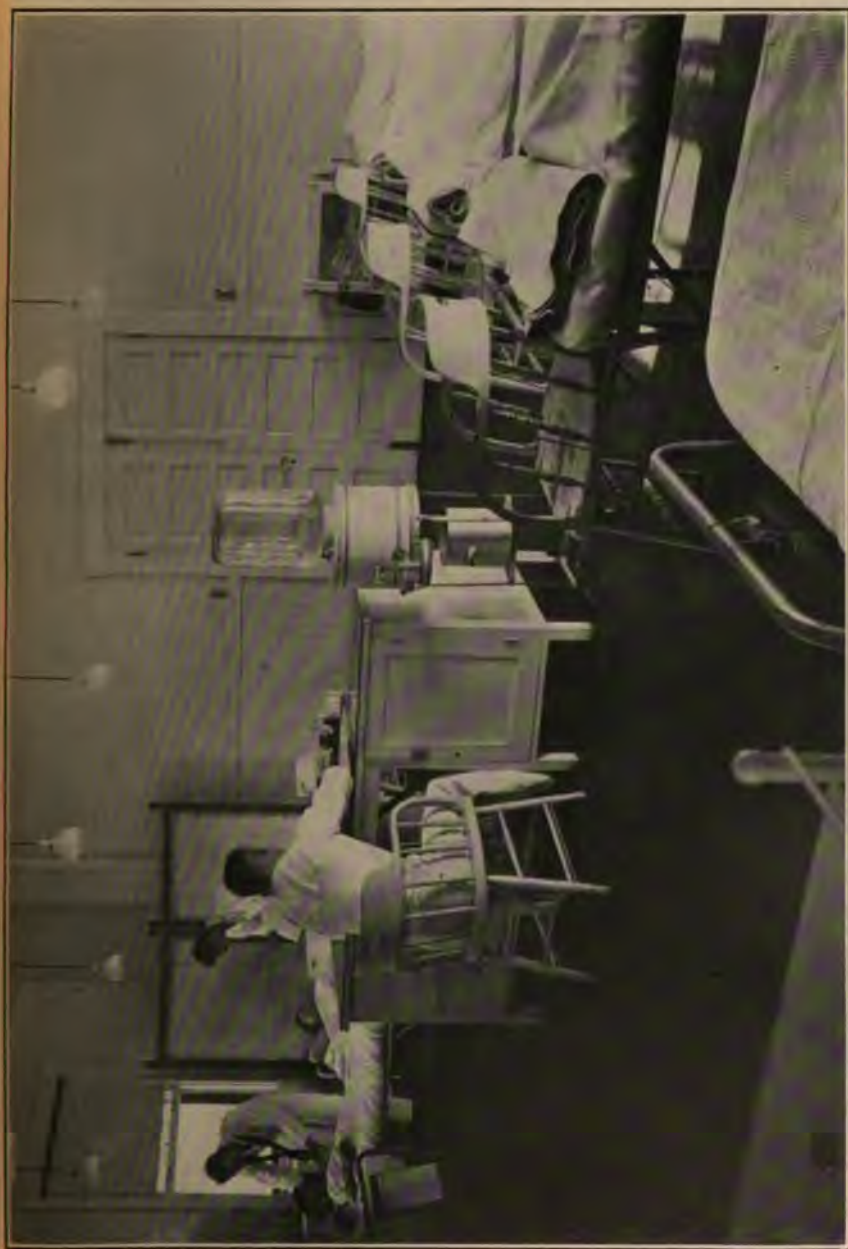
Two medical officers remain on duty at the dispensary during flying hours, one acting as officer of the day. The latter accompanies the ambulance and directs rescue work, makes all inspections on the station, and devotes one hour a day to instruction of hospital corpsmen.

*Naval Ammunition Depot, Fort Mifflin.*—The personnel of the medical department consists of one medical officer and two hospital corpsmen which at present is sufficient to meet all the needs of the post. There are at this post approximately 150 persons in the marine and naval service and about 350 civilian employees. Ailments among the enlisted men and frequent injuries among the civilian employees require the constant attention of the medical personnel. To properly guard the health of the workmen in the T. N. T. plant, frequent examinations of the men by the medical officer is imperative. The medical department has at its disposal a single room 11 by 16 by 10 feet, situated in a noisy frame building. Every day approximately 30 persons apply for examination, advice or treatment at the dispensary, but satisfactory examination or treatment can not be rendered under the present circumstances. The commanding officer at this post recognizes fully the shortcomings of the present dispensary and he has exercised his efforts toward establishing new quarters for the medical department. Plans have been submitted for converting the old marine barracks into quarters for the medical department.

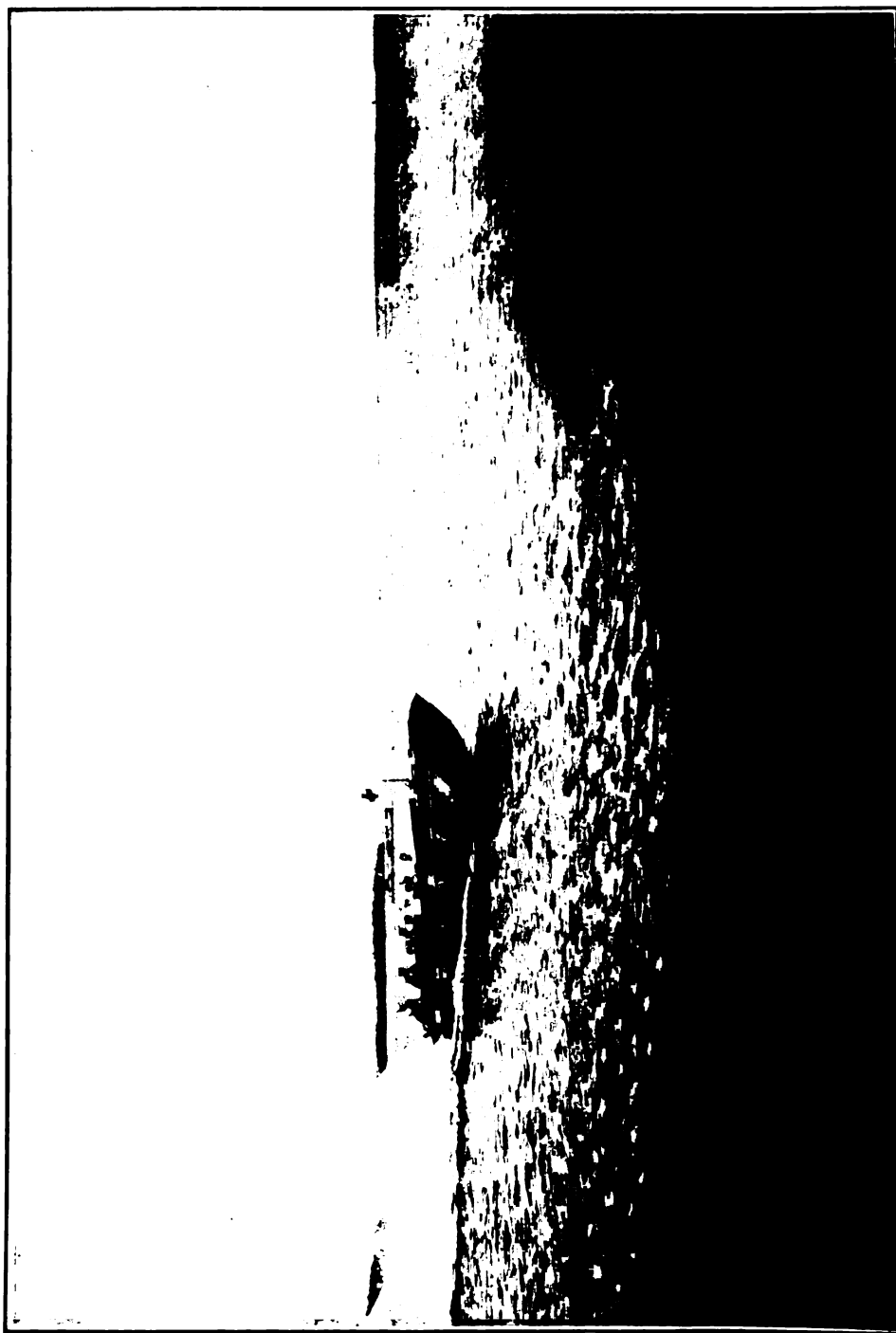
*Dunwoody Naval Training Schools, Minneapolis, Minn.*—The sanitary conditions surrounding the men of the Navy under training in Minneapolis have been commendable and excellent during the past year. The health of the command has been in keeping with the very sanitary surroundings and the efforts put forth to maintain it at a high standard. The city of Minneapolis and the State of Minnesota possess excellent and well-maintained sanitary administrations, and these have always been ready and willing at all times to cooperate with the naval medical officers in all matters pertaining to prevention, control, and treatment of disease. The city is clean and the sanitary supervision thereof is competent and well performed.

There has been no complaint made by the men regarding quarters, and all recommendations as to sanitation, housing and allowed floor space, and cubic feet of air space per man made by the senior medical





DISPENSARY TYPE OF WARD, U. S. NAVAL AIR STATION, MIAMI, FLA.



officer have been carried out. The minimum of 40 square feet of floor space and 400 cubic feet of air space per man has been adhered to rigidly. Constant, regular, and efficient sanitary inspections have been made by medical officers, and when any unsanitary conditions were found they were immediately corrected. These, happily, have been few in number.

With the exception of the recent epidemic of influenza and diseases of the respiratory organs no diseases have appeared in epidemic form, with, of course, the exception of the ever-present mumps. Diphtheria, scarlet fever, smallpox, and cerebro-spinal fever are epidemic here and there have been a few admissions for all these. Of the above epidemic diseases there were two cases of cerebro-spinal fever, two of scarlet fever, one of smallpox, and seven of diphtheria, all being discharged to duty as well and none developing later complications necessitating survey or further hospital treatment.

The ventilation and other sanitary features of all barracks have been of the best. When communicable diseases developed in any man the contacts were at once inspected with a view to controlling further spread. The case of smallpox was infected prior to enlistment and the disease developed after the man had been transferred here. No other cases followed, nevertheless all contacts were kept under strict observation.

The possibility of food contamination by flies has been minimized by a thorough system of screening. Garbage receptacles are kept in screened inclosure and covered. Mess halls and galleys, with their frequent passages and storerooms, were thoroughly screened previous to the fly season, on recommendation of the senior medical officer. Breeding places for flies were destroyed and the fly pest in the vicinity of Dunwoody Industrial Institute and the sick quarters was practically eradicated. The absence of flies at the sick quarters was especially noted by Rear Admiral A. Ross, United States Navy (retired), when he made an inspection here in September.

There were 60 cases of gonococcus infection of urethra and 10 cases of syphilis. Many of these diseases were "statistically inherited"—contracted at some other place and diagnosed here. This was especially true of the men of the Naval Reserve Force who were called into active service. When examined upon reporting for duty some of these men were found to be infected with gonorrhea, this infection having been acquired during their time spent at home or other places while on inactive duty. Necessarily their treatment and final diagnosis devolved upon the naval medical officers, and they were added to our admissions for venereal diseases. Although these cases appear on our statistics, they belong in reality to the civil communities whence they came.

General prophylaxis has been successfully carried out, few cases of venereal disease being locally traceable to men who had carefully and continuously taken treatment. The greater percentage of our local admissions were in men who had neglected to take prophylaxis or had delayed its use. Disciplinary action in the cases which deliberately refused to employ prophylaxis was taken.

During the past year about 400 men, in classes of 100, have been given the special course of instruction afforded by the generous offer of the University of Minnesota to assist in training men of the Navy

hospital corps free of cost. Each of these classes was under training for three or four months. The course of instruction has proved very valuable to the naval service and it is a source of gratification to know that the University of Minnesota so kindly and patriotically donated its services in such a practical manner without financial return.

During the great epidemic of influenza the city hospital offered accommodations for such of our men as we deemed in need of hospital treatment. In view of the fact that at the time this offer was made the epidemic was raging in the civil community in a critical state and hospital facilities were taxed to their utmost, the offer to take care of our men is especially noteworthy.

Eighty-five men of the class of hospital corpsmen (the fourth class) under instruction at the University of Minnesota, were temporarily detailed, as an emergency measure, to the city hospital in efforts to control the epidemic. These men not only performed excellent service, but the duty was a valuable practical course of instruction. But one man became sick during this duty.

Fully half of the nursing staff of trained nurses of this locality were sick or under treatment during the epidemic and the services of our hospital corpsmen proved an invaluable aid in combating the disease, arresting its course and filling the gaps caused by the scarcity of trained female nurses.

The hospital corps complement (ship's company) of the station proved equal to the enormously increased demands upon their services. Although working under great stress and on duty many hours continuously, owing to the large field to be covered by a small number of men these men performed their duties in a manner reflecting great credit upon the hospital corps, the Navy, and themselves. The senior medical officer knows no finer example coming under his observation during the epidemic than that of these men who so unselfishly gave their time and labor in efforts to control a most critical situation. All the sick at all times received every possible medical attention.

*United States Submarine Base, New London, Conn.*—The present sick bay and dispensary was first occupied August 15, 1918. It is a separate building and is very satisfactory and well arranged. It could accommodate about 60 patients. The two wards are well lighted and easily ventilated. It is heated by hot water from a central heating plant. The equipment is excellent and in good working order. The building is a two-and-a-half-story frame structure with a basement under the central part.

Considerable T. N. T. in the dry state was handled in the ammunition depot. No cases of true poisoning were observed although four cases of skin lesions about the neck and wrists could be traced to no other cause. These lesions resembled impetigo and all cleared up rapidly when the men were relieved from the duty of handling T. N. T.

The following rules were published, posted, and repeatedly impressed on the men concerned:

#### HEALTH RULES.

The following rules for men handling T. N. T. should be very carefully followed as neglect of them may result in serious trouble.

1. Thoroughly wash hands, face, and wrists as soon as possible after handling T. N. T. and always before touching any food or tobacco.
2. Rinse your mouth and clean teeth before eating.
3. Never eat while at work.
4. Take a bath and change clothes completely as soon as possible when through work for the day.
5. Whenever practicable, wear gloves when T. N. T. is to be handled.
6. Wear respirator while at work if there is much dust. Stir up as little dust as possible. Poisoning can be caused by inhaling the dust.
7. Come to the sick bay if there is any sign of skin eruption or if you do not feel well.

While the submarines based here were doing patrol duty, which was undoubtedly very arduous duty, the number of men reporting at sick call was even smaller than is usual among men of this branch of the service. Frequent inspections were necessary in order to locate men who were in need of medical attention. Commanding officers were requested to send any cases of even minor ailments which came to their attention to the sick bay. A few officers and men broke down physically under the strain and had to give up submarine duty.

The personnel for this duty requires almost as careful selection as for aviation duty. Special attention must be given to the temperamental qualifications, as these are as important as the physical, perhaps more so. One who is not temperamentally well qualified will soon show physical effects, while another man not physically strong may thrive on submarine duty. A man may be in excellent physical condition and yet be totally unfit for duty aboard a submarine. Officers and men are occasionally found who apparently have a real phobia and in spite of honest attempts are unable to overcome it. Officers detailed for the course of instruction in the submarine school are given a thorough physical examination as soon as possible after reporting and those considered unfit for submarine duty are eliminated. It is common for men with long submarine experience to suffer from thickening and retraction of ear drums, resulting in partial deafness. Many men are apparently predisposed to this by chronic tonsillitis or any throat affection, as well as by a marked tendency to common colds. The duty requires young and vigorous officers and men, and they should not be kept at it for more than four years even at their own request. The following special conditions should be considered sufficient cause for rejection from submarine duty:

- Any indication of unstable nervous system.
- Chronic nose and throat affections.
- Intra-abdominal trouble which might require sudden operative interference.
- Foul breath from any cause.
- Middle ear disease.
- Excessive perspiration of any part of the body.
- Obesity.

Gas masks should be part of the equipment of submarines, and the crew should be carefully instructed in their use.

The submarine ration should be standardized as far as canned and dry foods are concerned. The present ration apparently varies very much at the discretion of the cooks in boats operating under similar conditions. *The cooks detailed to submarines should be thoroughly instructed in the selection and preparation of food, as much of the*

contentment as well as the health of the crews depends on this item. It is believed that an additional amount of canned soup and hard bread should be incorporated in the ration when out on extended cruises. The present allowance of canned soup is not sufficient. Onions are considered unsatisfactory, and their food value does not warrant their use. Canned fruit is a very valuable article and is apparently issued in sufficient amounts. Fresh fruit should be used as long as possible. All bread for issue to submarines should have thick crust and be carefully wrapped in waxed or oiled paper with as little handling as possible. Individual drinking cups should be used on all submarines, as on this type of vessel they are more satisfactory than bubbling-well scuttle butts, owing to the scarcity of fresh water.

The first-aid outfit supplied at present is satisfactory when proper stowage space is available.

No facilities are provided for bathing aboard submarines, and even in good weather it is impossible to get a bath. It is believed that a shower bath could be installed on deck and the circulating water from the engines be used as a means of heating the water.

The head is generally located in a very inaccessible situation, but this is considered more satisfactory by most of the men than having it in an open space in one of the main compartments. It is impossible to use the head during long submergence, consequently it is important for the crew to cultivate regular habits in this respect looking to bowel movements when the boat is on the surface, thus avoiding the chronic constipation so frequent among them.

The heating question in cold weather is a serious one. Electric heaters use a large amount of current and are frequently inadequate to even make the boat partly comfortable. Here again the circulating water from the engines might prove of some use if it could be utilized, as much heat is generated and practically all of it lost as the hot water is discharged overboard. The constant dripping from sweating sides is a very disagreeable feature of most boats.

Gasoline poisoning is very seldom seen at present, but during the first part of the year cases were common, when several gasoline-burning boats were stationed here. In January one of these boats reached the base after a run with the entire crew suffering from the effects of gasoline poisoning. Some of the cases are rather startling, but very few require hospital care or even admission to the sick list, as the symptoms clear up in a few hours. The most troublesome symptom is a severe frontal headache. Some of the cases become unconscious soon after reaching the fresh air when they come out of the boat. No cases of illness that could be attributed to arsine poisoning have been observed.

Submarine crews while in port should be offered every facility for outdoor exercise and should be encouraged to take part in various sports. When on patrol duty they should be granted frequent leave in order to give them a complete change of surroundings.

*United States Naval Training Station, Newport, R. I.*—At least 60 per cent of the cases of venereal disease admitted here were among the recruits arriving at the receiving building. Several cases of syphilis were discovered by the psychiatrist during the course of his

examination of these men. Comparatively few cases of venereal disease were contracted by the personnel of this training station in the city of Newport or vicinity. This is due to the wise provision of the Secretary of the Navy forbidding the sale of alcoholic liquors within a radius of 5 miles from the place and to the efforts of the police force of the city of Newport, who have practically succeeded in abolishing prostitution. Most of the cases of venereal disease admitted appear to have been contracted either while on leave or in Fall River.

Twenty-one thousand nine hundred and forty-three recruits were received at the receiving building during the year. During much of the time it was not possible to carry out the detention period of 21 days. A large majority of these recruits could only be retained at the receiving building and adjacent barracks for a period of from one to five days. This is, of course, most unsatisfactory and tends to spread contagious disease among the personnel of the entire station. However, the new receiving barracks at Coddington Point, which it is hoped will be in full operation by next summer, will undoubtedly eliminate this undesirable feature, and recruits will be able to spend the regular time in detention before being transferred to the station proper.

Formerly the recruits when being examined by the medical officer were required to be in a nude condition from a half to one hour. This was not considered desirable, and all recruits are now furnished with a loose gown of either unbleached muslin or flannelette. This gown is slipped on as soon as they remove their clothes.

At times during the summer months the personnel of the training station numbered over 13,000 men. With the approach of cold and inclement weather, which necessitated the abolition of the tent colonies it became necessary to reduce the personnel to about 6,500. Upon recommendation of the senior medical officer the number of men in each shack was reduced to 70 men for the winter. This is all that can be properly accommodated in the shacks, as it gives the men a reasonable amount of floor space and air space. A great improvement in all the shacks has been the installation of a night head in each. This does away with having to go at night to heads which in some instances were from 50 to 100 yards away. These heads are open at 9.30 p. m., and closed at 4.30 a. m. This change has undoubtedly decreased the number of admissions to the sick list for respiratory diseases.

During the year facilities for recreation have been greatly increased and are now satisfactory. There is one Y. M. C. A. hut, one K. of C. hut and the building formerly occupied by the drill officer has been converted into a first-class gymnasium and recreation hall. The Y. W. C. A. is erecting a commodious building just south of the yeoman school. This building will be known as the hostess house and will be used primarily as a recreation building and reception room for visiting parents and friends of recruits. It will be in operation early in January and fill a much needed want here. The canteen at Coddington Point, which formerly was under the supervision of Mrs. Hamilton Fish Webster and other philanthropic women, has recently been taken over by the training station and is

now under the commissary officer. It is open for recruits during the week from 4 p. m. to 9 p. m., and on Sundays and holidays from 10 a. m. to 9 p. m. There were 327 men examined for enlistment during the year, of which number 192 were enlisted and 112 reenlisted. There were 26,078 men examined for transfer during the year. All recruits received at this training station during the year were examined by a dental officer and had dental records attached to their health records. The volume of this work has been so great that it has been impossible to attend to all carious teeth. The work of the dental officer has perforce been confined to emergency work and examination of recruits.

**Psychiatric department:** This department was until December 3, 1918, under the direction of Lieut. G. F. Brewster, Medical Corps, United States Naval Reserve Force. The work of this officer was excellent and has been the subject of a monthly report to the bureau.

*United States Naval Torpedo Station, Newport, R. I.*—By carefully eliminating the physically unfit from duty at the T. N. T. filling house, the deleterious influence of this substance has been confined to an occasional case of skin eruption, usually restricted to areas about wrists and forearms. No one having definite constitutional symptoms of T. N. T. poisoning, except of a very transitory nature, has been noted. Our observation tends to confirm the belief that negroes are not readily susceptible to the poisonous effects of T. N. T., while men under 21 years of age and those of light complexion are apt to be easily affected. Precautionary measures against the absorption of T. N. T. have been carefully carried out and instructions on the subject given to the workers. The meager bathing facilities and lack of sanitary equipment at the old filling house on Rose Island are features that will be corrected when the new building there is placed in commission.

There has been comparatively little loss of time on account of sickness among women employees at the primer department nor have they been subject to more than a few minor injuries while at work.

*Navy yard, New York.*—Since the last report many old buildings have been torn down and new and more sanitary structures have been planned to take their places. The interior of the yard dispensary has been remodeled. This was necessary on account of the great increase in the number of cases coming to the yard dispensary for treatment. During the year 1917, 5,485 cases were treated. During the year 1918 this number was trebled, over 15,000 cases being treated.

The number of enlisted personnel has been increased from about 400 to nearly 1,800 and since the removal of the receiving ship this office has had to take care of the increased personnel and their health records. The yard dispensary has also been used as a clearing house for cases which were referred to the United States Naval Hospital, New York, for treatment, the hospital having continuously referred all cases not seen by a naval medical officer to this dispensary.

The average number of officers connected with this yard and station is about 200. They and their families have received medical attention and supplies when needed. In addition, numerous officers have been treated who are unattached and on leave, etc.



There were 11 deaths of civilian employees during the year 1918, as against 16 in 1917. The causes were as follows:

Fracture of skull .....	3
Fracture of spine .....	3
Septicemia .....	1
Fracture of ribs and puncture of lung .....	1
Disease (spinal fluid 4x) .....	1
Drowning (accidental, bodies not recovered) .....	2
<b>Total .....</b>	<b>11</b>

During 1918 there were no cases of lead poisoning, against 5 in 1917. At the present writing there are about 17,000 employees in the navy yard.

The office of the dental surgeon now consists of 5 large rooms subdivided by partial partitions into 14 small rooms, namely, 6 operating rooms, 5 waiting rooms, an office, a storeroom, and a locker and dressing room for hospital corpsmen. Each operating room is entirely separate and complete in itself with a standard dental unit. The receiving ship having been removed from the navy yard the dental equipment belonging to it was removed also. All equipment now on hand belongs to the navy yard. The personnel consists of seven dental officers attached to the navy yard and six members of the hospital corps.

Patients are drawn from all ships not having dental officers, from ships whose dental officers are sick or on leave, from French, British, and Brazilian ships, and from all stations in the third naval district which do not have a dental officer. The number of patients appearing for treatment each day varies from 50 to 125. Frequently a medical officer will see 20 or 30 patients in one group.

*Armed draft detail, navy yard, New York.*—The average armed guard assigned to a merchant ship consisted of about 25 men, who were provided with a medical boat box. While in the barracks men were instructed in first aid and venereal prophylaxis, emphasis being laid on the prevalence of venereal diseases in foreign ports. As all of these ships carried a well-equipped medicine box, many of the larger ones had civilian physicians, and medical officers of the Army and Navy were present at all bases and ports abroad, it is considered that the men at sea received adequate care when in need of medical attention.

*Receiving ship, New York.*—The beginning of the year 1918 found the enlisted personnel of the receiving ship quartered on the two Hudson River steamboats, the *Adirondack* and *C. W. Morse*, with administrative offices on the third and fourth floors of the old prison building. This arrangement, considered only a temporary expedient, was continued until the new barracks at Bay Ridge, Brooklyn, were occupied on November 1, 1918.

On Ellis Island the part allotted to the receiving ship was in previous times used by the Department of Immigration for quartering immigrants. The dormitories which were used for this purpose have been found excellent for quartering the receiving ship. The average complement on Ellis Island has been 1,600 to 1,800 men, and it has served to relieve in part the overcrowding. A sick bay of 25 beds was established with a fully equipped Navy standard dispensary and operating room. With these facilities Ellis Island has

taken care of practically all its own sick, only a few cases being transferred to the naval hospital.

Since the receiving ship personnel was moved to the Bay Ridge Barracks, Ellis Island has been used as an overflow station and for quartering men who are not available for transfer on account of the temporary incompleteness of their transfer papers. All venereal cases are treated on Ellis Island where the facilities are ample. No venereal cases are permitted to remain at the barracks in Bay Ridge. As soon as reported they are immediately transferred to Ellis Island. Here they are segregated, berthed, and messed separately. Syphilis and chancroid cases are also treated here and are not sent to the naval hospital. Owing to the fact that incoming ships usually in transferring men include a large number of venereal cases there were 155 such cases at one time on Ellis Island. As soon as the acuteness of the disease has subsided and in specific cases as soon as there are no open lesions, venereal cases are sent to ships that have medical officers and proper equipment for continuing treatment. Venereal inspection is held at least once a week without being announced, and all cases discovered are sent to Ellis Island for treatment.

The Bay Ridge Barracks of the receiving ship are situated in the Bay Ridge section of Brooklyn, between Sixty-ninth and Eighty-first Streets along the Shore Road facing the bay. They were taken over on November 1, 1918, when hardly more than half completed. Experience has shown the inadvisability of occupying quarters which are not completed, and even at this writing much is to be done before the barracks will be entirely finished. However, it seemed better to move into the barracks than to remain on the old ships in the navy yard.

Since moving to these barracks the feasibility of separating the personnel from the industrial activities in the navy yard has been clearly shown. During war times, especially, the impracticability of quartering several thousand men in a navy yard which is nothing short of a large industrial plant, has been very apparent.

The barracks are two-story buildings, each floor normally housing 60 men. There are 38 barracks besides two in the quarantine camp. Each group of barracks has its own latrine and wash rooms, separated but in close proximity to the barracks. The barracks are separated into different groups, each representing a regiment, five in all, including the quarantine barracks. Each group has its regimental headquarters where all the clerical and administrative work of the regiment is performed. There are three dispensaries in the barracks, one located near each end and one in the quarantine barracks. Connected with each dispensary there is also an isolation ward built according to the latest theories for the prevention of cross infection. The dispensaries each have a capacity of 20 beds, while each isolation ward has a capacity of approximately 40. Including all the dispensaries and isolation wards in the barracks and the sick bay at Ellis Island, there is a sick-bed capacity of 175. In one dispensary a room originally intended for a quiet room has been altered and is being equipped as an operating room. A small room originally intended for storing linen and next to the operating room is being converted into a sterilizing room. Each dispensary has a well-equipped

dressings room, pharmacy, medical storerooms, officer of the day's quarters, offices and dental offices. The laboratory building consists of three rooms and is situated close to one of the dispensaries. It is well lighted and especially designed for this purpose. The equipment is most complete and modern. All the laboratory work required for this station, including Wassermann tests, is done here.

Near the administration building there is a small building called the recruiting and discharge building, where all the routine work for enlistments and discharges is carried out. Here is set aside a room for the physical examination of men enlisting or being discharged or released to inactive duty. In this room the ordinary physical examinations for promotion in rank or rating are carried out and all finger-print identification records are made. The work of enlistment and discharge has been well organized, as evidenced by the fact that in one day it has been possible to discharge 300 men. In the original plans of the camp this building was located quite a distance from the administration building but upon recommendation of the senior medical officer its location was changed to a place close to that building. The advantages of this change were recognized at once.

In addition to the main camp there is a quarantine camp capable of housing approximately 250 men. This camp also has an isolation ward and a dispensary. In planning this quarantine camp it was the intention to use it for the segregation and isolation of suspected drafts of men. In this way the quarantining of the barracks in the main camp would be obviated. Upon the discovery of a suspected case of communicable disease and upon recommendation of the senior medical officer, instead of quarantining the barracks in which the suspect is discovered and thus rendering it useless for receiving-ship purposes, the suspected contingent is immediately put into use again, after necessary disinfection.

During the epidemic of influenza which occurred while the receiving ship was still in the navy yard all cases were transferred immediately to the naval hospital at the beginning of the emergency. The inadvisability of transferring men to the hospital, who in all probability would recover within two or three days, was realized. For this reason and on account of the fact that the sick bays were not properly fitted to care for these patients, a steam barge, the *W. C. Moore*, was obtained and put into service. Two decks of this vessel were found to be well lighted, well ventilated, and sufficiently heated. Field cots were obtained from store in the navy yard and in this way an average of 100 cases was taken care of and congestion at the naval hospital lessened as far as the receiving ship was concerned.

*Navy yard, Norfolk, Va.*—From February 1 until about September 1 the general health of the personnel of the yard was excellent, and, while there were occasional cases of infectious disease in the yard workmen and their families, necessitating quarantine, the incidence of communicable diseases was low. During the epidemic of influenza, Portsmouth and Norfolk suffered like other cities along the Atlantic coast in the yard personnel.

During the period above mentioned the work of this office has been extremely active, the number of civilian employees in the yard

ranging between nine and ten thousand, and the enrolled personnel being about 1,500, not including the personnel at the marine barracks which, until the last month of the year, averaged about 700. During the latter months of the year this office offered the civilian workmen the typhoid prophylactic inoculations and made identification tags for the navy yard personnel. This was done also for the crews of a number of the smaller ships. On an average about 150 patients were treated in the dispensary daily during this period, and numerous calls were made on patients of the Navy personnel in the city of Portsmouth, Port Norfolk, and Park View, which during the epidemic of influenza reached as high as fifty to sixty calls daily.

There have been 11,274 men examined by the labor board during this period. All men examined at the labor board are vaccinated against smallpox prior to their being accepted as navy yard employees.

There have been several deaths due to accidents, but considering the great activity at this yard it is believed that every precaution has been taken to prevent serious accidents, and even with the excess work our casualties have been small.

*Receiving ship, Norfolk, Va.*—Scarlet fever appeared early in June, 1918, a time at which the station was greatly overcrowded, and continued until the 23rd of the month. Twenty-eight cases developed. A quarantine camp for contacts was established and the entire station was closed against incoming and outgoing drafts of men. It is a remarkable fact that not a single case developed among the contacts in the quarantine camp. However, it should be said that the sanitary conditions of the quarantine camp were far superior to those of any other. In March, 1918, 2 cases of smallpox appeared. In case 1, a recruit, the initial symptoms appeared after he had been on the station 14 days. It seemed that this man must have been exposed previous to his arrival here, but in the same company with him 2 other cases appeared a few days later. Consequently, it is probable that the source of infection in these cases was a mild, unrecognized case of smallpox in the detention group at the time these recruits arrived. Case 2 was a recruit who had been on the station only seven days and was undoubtedly an imported infection. So soon as these cases were diagnosed a vigorous revaccination campaign aimed to include the entire personnel of the station was immediately instituted with very successful results.

The average complement of officers and men for the past year was 7,472. The total number of sick days was 22,958 and the total number of admissions and readmissions to the sick list was 5,922. The number of men surveyed on account of physical disorder or mental disability was much greater proportionately than in time of peace—about double. Among the recruits epilepsy, chronic otitis media, constitutional inferiority, and flat feet were the most prolific causes of physical-disability discharges. Two hundred and eighty men were given medical survey during the year.

During the year 1918, 10,904 operations of various kinds were completed in the dental department. A careful examination was made of every man discharged from the service and of the men transferred to inactive duty. The results were charted and compared with the chart on date of entry into the service and signed by a dental officer, so that we have a complete dental record of every man

leaving this station. Some 730 men have been examined for this purpose during the past year. Considerable attention was paid to the instruction of recruits in the care of the mouth and teeth and lectures were given daily to the men in companies so that every man passing through the detention camp of this station received the necessary instructions. About 10,000 men were examined and had dental charts completed for them in the first half of 1918 after which all recruits were sent to the naval operating base. The equipment, material, supplies, etc., up to the present time, have been ample and considering conditions there can be no complaint of any kind. During the latter part of the year dental offices were established in three new dispensaries.

*Naval training camp, Pelham Bay Park, N. Y.*—At the beginning of the year the average complement of the camp was 5,000 men. The medical department conducted its operations through the medium of three infirmaries and one receiving building, the three infirmaries having a total bed capacity of 36. No provision had been made to give proper office space for the execution of the necessary work, and there was no storeroom space for the necessary supplies, and no definite scheme for organization had been developed. On March 2, 1918, a definite organization, or reorganization, of the departments, of such elasticity as to meet any possible expansion of the camp, was submitted to be approved by the bureau. Since being placed in operation the reorganized department has been subjected to two tests: (1) The rapid expansion of the camp from an average complement of 6,000 to one of 16,000 men; (2) the sudden and marked increase of the daily average of sick due to the epidemic of influenza.

The general expansion of the camp produced the following additions to the medical department: One administration building, 1 laboratory, 1 medical storehouse, 1 garage, 8 infirmaries, and 2 observation wards. In addition to the usual infirmary work, two special clinics under the charge of specialists, were established viz: One eye, ear, nose, and throat, and one urological clinic, in both of which excellent work has been done.

The influenza epidemic developed 2,720 cases, of whom some 1,200 were transferred to the hospital. The total number of deaths, camp and hospital included, was 128, or a death rate of 4.7 per cent.

The average complement of this station during the month of January, 1918, was 3,714. This gradually increased to 6,213 men at the end of June. The number then rapidly increased to 14,896 in September, due to the extension camp having been placed in commission in July. From that time on the average has approximated 16,000. The highest complement was 17,587, in December. During the year, 103,083 men have been stationed in camp.

The medical department of the camp has expanded from 3 to 11 infirmaries, 1 observation ward, 2 special clinics, a receiving station, a releasing station, a receiving ship, a camp hospital, a camp laboratory, a medical storehouse, a garage, and an administration building. The latter is assigned for the office of the senior medical officer, senior dental, executive, sanitary and material officers, the record room, and a dispensary pharmacy.

The personnel of the medical department has increased from 7 medical officers, 2 dental officers, and 56 hospital corpsmen in Janu-

ary to 17 medical officers, 7 dental officers, and 132 hospital corpsmen in June. The increase was more rapid after September, so that in December there were 40 medical and 14 dental officers, and 176 hospital corpsmen.

The observation ward consists of six units, with separate toilet and shower for each. This building has a capacity of 24 beds, and has been used from time to time for the segregation of communicable diseases until transfer to the hospital was practicable. The second observation building has been taken over by the clinics.

A clinic for the treatment of nose, throat, and allied conditions was established under the direction of Lieutenant J. A. MacIsaac, Medical Corps, United States Navy, where 2,450 cases have been treated, and 298 minor operations performed.

A clinic for the diagnosis and treatment of venereal, urologic, and dermatological conditions was developed under the supervision of Lieutenant O. S. Lowsley, Medical Corps, United States Navy. The acute venereal cases were transferred to the United States Naval Hospital, New York, until the arrival of cases from overseas reduced the hospital's facilities for handling these cases. It became evident that this class of patients must be treated on the station, so recently they have been transferred to the camp hospital under the supervision of the urologic clinic.

In recruiting at the receiving station 4,092 recruits were examined, of whom 2,156 were accepted and 1,936 were rejected. Twenty thousand seven hundred and forty-six men reporting for duty from civil life were examined, of which number 153 men were referred to the board of medical survey and recommended for immediate discharge. There were 17,406 antityphoid inoculations given. Of 15,564 cowpox vaccinations given 13,467 were positive. There were 16,854 identification tags and 4,170 sets of finger prints made.

The camp hospital was established in December, due to the fact that an unusually large draft was received from overseas and that the United States Naval Hospital, New York, was filled to capacity. This consists of six barracks in the isolation camp. Each barrack has two sick bays accommodating 20 men, with a galley and latrine for each section. This arrangement makes it very convenient to group similar classes of cases. The barracks have been equipped with cots and each man uses his own mattress and bedding. This organization is being maintained for the purpose, first, of handling any overload that may arise and secondly, to segregate venereal and parasitic skin cases.

Early in the year a sanitary division was instituted, with Lieutenant (Junior Grade) George R. Irving, Medical Corps, United States Naval Reserve Force, in charge. Under his able direction this department has been in a large way responsible for the excellent health generally maintained in this camp.

A board of medical survey composed of Lieutenants F. P. Field, G. G. Hart, and Lieutenant (Junior Grade) G. R. Irving, Medical Corps, United States Navy, has examined between 600 and 700 men and recommended that 249 be invalidated from the service for disease and 12 for injuries. The larger proportion of these conditions existed prior to enlistment. Attention is invited to the fact that this board, so constituted as to be convened at any time, was able to dis-

charge 153 men found physically unfit on reporting for duty from civil life before outfits had been issued. This board also acts in an advisory capacity on reserve-force men whose physical condition is doubtful when examined for release from active service.

During December an unusually large draft, 5,000 men, arrived in the camp from overseas. They brought in a second but small epidemic of influenza. There were 303 cases admitted in four weeks. The pneumonia complicating these cases was fulminating and due, in a majority of instances, to infection with hemolytic streptococci. This draft also brought in a number of parasitic skin diseases: scabies, 120 cases; body lice, 9 cases, and the usual percentage of pubic lice. One building was immediately equipped for delousing in case any large number of infested men should be received.

Throughout the year the sanitary condition of the camp has been excellent. The personnel has been generally happy and contented, well clothed, well fed, and well housed. Athletics have been fostered, under careful supervision, not only affording the healthiest type of mental and bodily recreation, but also high-grade amusement for the men and their guests and bringing great credit to the service and the camp. Very rarely, and for but short spaces of time, has the question of overcrowding become serious. Only since the men have begun to return from overseas have the care of barracks and gear, the policing of grounds, and the elimination of body parasites required attention. Epidemics have been unknown, with the single exception of influenza, and preventable diseases, including the venereal group, have been kept at a minimum.

The sanitary division of the medical department was organized in April, 1918, with the assignment of one commissioned officer, Lieutenant G. R. Irving, Medical Corps, United States Naval Reserve Force, and of two hospital corpsmen, to be the nucleus of a working detail. This assignment included sanitary inspections of the camp, with additional duty to cover matters in the vicinity and incident to the construction of the new camp. Formerly, the inspections were part of the duty of the regimental medical officer, with report to the senior medical officer via the brigade surgeon. The reports of the regimental medical officers are not dispensed with, but are used to supplement the work of this office.

It has been the policy to take up directly with the responsible parties such matters as require regulation, straightening out the difficulties as inspections revealed the needs and as new developments presented. Often, in this way correction of conditions was secured before report could be made, and the turning in of a report became unnecessary. Recommendations have been made and action obtained on the major features, establishing permanent sanitary detail with equipment; screened-in garbage areas in connection with galleys; installation of bubbling drinking fountains in barracks; requirements for the airing of bedding and equipment; plans for the rearrangement of liberty and billeting to lessen overcrowding; an inspection system covering all phases of food handling; extension of sewers from main camp, brig, power house and boathouse; drains for isolation parade ground, service court and northeast corner of extension camp; extensive mosquito control work outside fences; frequent inspections of civilian camps near hospital; police supervision

along City Island road; compilation of data for sanitary survey of camp; temporary infirmaries in isolation camp; swimming facilities off the east shore of City Island, and regulations for swimming pools; improved construction of temporary latrines for workmen; regulation of water and lunch facilities during construction; progress on removal of poison ivy.

There are still needed: Improvement in the transportation of food, particularly the containers for meat; concrete and drainage connections at rear of extension camp galleys; impervious deck in entry way to night urinals, extension camp barracks; extension of prize money system; welfare fund; authority over surrounding zone; mosquito work; fly control; regulation of food vendors, and removal of weeds; routine regimental inspections; installations of equipment for isolation camp temporary infirmaries; improvement in collection and disposal of refuse, including tin cans and combustible material; adequate garbage collection and disposal; uniform method for care of cleaning gear; replating outfit for galley utensils and mess gear; larger areas of grass in dust prevention; radical measures against rats; more complete investigation of cases of contagious diseases for epidemiological data; extension of supervision of cleaning welfare buildings; control of venereal prophylaxis.

If the camp is to be continued for some time to come, and a large complement maintained, one recommendation, in connection with this report is submitted: erection or assignment of barracks to accommodate at least 1 per cent of the total complement of the camp for hospital corpsmen, to include messing facilities. These buildings should be constructed either in the vicinity of the medical administration building or the buildings now used by the officers' training school should be transferred to the medical department. It is understood that the latter will very shortly be discontinued as a training school.

The present system of quartering hospital corpsmen in the various regiments under more or less regimental command has proved very unsatisfactory and often embarrassing to both the medical department and the regimental commanders. By the existence of such buildings, for hospital corpsmen only, this trouble would be eliminated and discipline, detail, and all other matters which should come under the cognizance of the medical department would be improved.

With the present number of dental officers, one to a regiment of 1,000 to 1,200 men, it is not possible to examine and thoroughly fit all recruits for the service during the short period of training, and if the camp is to be continued it is recommended that 13 additional dental officers be ordered here for duty so as to give two dental officers to each regiment. If this were done it would be possible to send for each recruit and give him a complete dental record and a clean healthy mouth by the time his period of training was completed. It is considered especially desirable to have the recruit's mouth in the best possible condition upon leaving the camp and going aboard ship, as a dental officer afloat has his working hours cut down considerably by rough weather, drills, inspections, etc., which makes it impossible to treat and complete a great number of cases. The present dental operating rooms, now occupied by one equipment, have plenty of room and light for two and if the additional officers are ordered to this station, practically no alterations will be required to



install an additional equipment in each regimental infirmary. Dental operations and treatments given during the year ending December 31, 1918, aggregate 18,900.

*United States Naval Air Station, Pensacola, Fla.*—Early in the year a detention camp was started just west of the hospital inclosure large enough for 400 men and 100 carriers, a separate and detached barrack-bungalow large enough for 100 men being part of the equipment. Here a disinfecting equipment is under process of installation and there are sick bay and hospital tents for casual sick. One medical officer has charge of this camp with additional outside duties. Two hospital corpsmen are in constant attendance and the force has averaged about 300. All incoming men are sent here for detention examination as to disease, cleanliness, and personal equipment. Their throats are all sampled and a specimen cultured at the yard laboratory. During the year 9,643 men have been received at this camp and throat cultures have shown 4.5 per cent meningococcus carriers and 140 diphtheria carriers. These carriers were immediately segregated and treated. Repeat cultures were then made at five-day intervals and when a carrier showed two successive negatives he was released. There occurred but one case of cerebro-spinal meningitis and one case of diphtheria coming from here, thanks to a strict enforcement of the detention rules.

A great deal of work has been done since early spring directed to improving the general sanitary condition of the station which covers an area of upwards of 2,000 acres, much of it being low, flat and marshy. Some of the marshes are inlets of Pensacola Bay. The old ditches were mostly filled with vegetable growth and the bottoms in many places were below the bay level. A careful profile survey was made of them all covering some 11 miles in length and a gang of 50 men has been working on them since the middle of May. All of the ditches have been cleaned and graded; five small swamps have been drained and work on the marshy areas about Commodore's Pond has been underway for sometime. These will be drained in about a month and, if the work is maintained, there will be no anopheles or stegomyia on the station to carry malaria or yellow fever infections. The destruction of anopheles is evidenced by the fact that there have been but seven cases of malaria this autumn. According to percentage statistics there should have been 350 cases with the present-sized complement based on the incidence of the disease in former years.

A sanitary squad has been at work constantly inspecting the 280 houses, together with latrines, cess-pools, and cisterns, in the contiguous villages of Woolsey and Warrington (on naval ground) and within and without the yard, inspecting, disinfecting, and correcting errors and suggesting repairs to latrines, sewers, kitchens, mess halls, barracks, tents, living quarters, work-shops—in fact, all public buildings. An appropriation has been granted for the extension of the yard sewer to deep water.

Most valuable aid has been given the senior medical officer by Surgeon M. H. White, United States Public Health Service, by his searching and intelligent monthly inspections and many suggestions for sanitary improvements.

The dispensary building has been thoroughly renovated during the year. Damages from the hurricane of September, 1917, have been

repaired. A new room has been fitted up for a third dental chair and outfit and one on the ground floor for surgical dressings and minor operations. The present laboratory room will be vacated as soon as the addition now under construction is completed and the old room will be used for patients waiting at sick call. This is a much needed improvement as, at present, the patients stand about the hall or out of doors, there having been as many as 500 at one time and an average of 100 daily.

Twelve medical officers, 3 dentists, 1 pharmacist, 3 yeomen, and 50 hospital corpsmen have done continuous and arduous duties with energy, ability, and unflagging zeal.

*Navy yard, Philadelphia, Pa.*—The work of the medical department of the yard increased so rapidly in 1918 that double the force of officers and men was needed over that of 1917. Where formerly 2 medical officers and 4 hospital corpsmen took care of the medical work of the yard, at the present time 1 senior medical officer, 7 assistants, a pharmacist, and 30 hospital corpsmen are needed to carry on the work. (This number does not include the 8 medical officers and 20 hospital corpsmen attached to the marine barracks.)

One of the chief features of the work of the medical department of the yard has been to provide treatment for civilian employees injured while at work. During the year 1918, 18,000 surgical cases were treated at the yard dispensary, necessitating more than 90,000 redressings. Of the above number of cases 15 were fatal, death resulting as follows: From burns, 4; from drowning, 2; from fracture of the skull, 3; from electrocution, 1; from septicemia, 2; from heat exhaustion, 2; from multiple injuries, 1. In addition to this number of yard workmen treated this department has given first aid to 1,000 men employed within the yard by outside contractors. Among these 8 deaths occurred; 3 from internal injuries, 3 from fractured skull, and 2 from drowning. Aside from those injured, this department has rendered medical treatment to 3,000 civilian employees, in the great majority of cases during the epidemic of influenza. Among the 1,200 enlisted men and women within the yard there has been a minimum of sickness. Prior to the outbreak of the influenza epidemic in September and October of 1918, there was practically no sickness among them.

During the year 1918, the dental staff, consisting of five men, has done 3,000 extractions and 5,000 fillings of teeth.

As soon as the pandemic of influenza developed the medical officer of the yard ordered that gauze masks be made and distributed among the yard employees in an effort to protect the air passages against this infection. These masks were sterilized each day and redistributed to the departments from whence they came, so that as soon as an employee began working on a particular shift he was compelled to apply for a mask. There is good reason to believe that this procedure contributed largely to the preservation of the health of the employees, as not one department or portion of a department in the yard was forced to slacken its work in the least. Among 1,800 yard employees who received initial treatment for influenza in this dispensary we have record of only 1 death.

The medical officer in conjunction with the machinery-division officer resorted to the following experiment among 1,000 yard workmen in the machinery division with the following results: Spraying

solutions, consisting of 2 grains each of camphor and menthol to 1 ounce of liquid petrolatum, were used by three men appointed by the machinery division to do nothing else but spray the nostrils and mouths of each one of the 1,000 yard workmen every two hours during all shifts. This solution was constantly replenished from the dispensary and no laxity on the part of any of the official sprayers was allowed during the whole period of the pandemic lasting 5 to 6 weeks. Out of the 1,000 men treated only 2 were reported as developing influenza. Each of the two cases had shown evidences of illness on the day prior to the beginning of the experiment. This particular department of the yard was therefore able to continue its work without any diminution in working results.

A large restaurant was early inaugurated for the accommodation of the yard workmen. This is managed financially by a board consisting of representatives from among the yard workmen and picked naval officers. A medical officer detailed from this department regularly inspects the same and his suggestions are immediately taken up and as far as possible utilized and the appropriate remedies instituted. In many of the larger buildings lunch rooms also, although on a smaller scale, have been instituted so that there can be no complaint on the part of any yard workman regarding difficulty in obtaining food at a minimum price. Every building containing such lunch rooms is carefully inspected every few days by a representative of the medical department and reports are submitted in writing to the medical officer. Food brought into the yard from the outside, as for instance on wagons, is carefully inspected at the dispensary by a medical officer before the same is put up for sale to the yard workmen. Milk likewise is inspected prior to its delivery within the yard.

When a yard workman is injured there are always available in all the shops of the yard first-aid packets to be applied prior to his coming to the dispensary. At the latter place, after further treatment, the disposition of the case is determined. If further transfer to the hospital is required, the injured workman is immediately transported by the dispensary ambulance or if unavailable by the ambulance of St. Agnes Hospital to that hospital (in charge is the United States Public Health Service). Since the latter institution is only  $1\frac{1}{4}$  miles distant on a straight line, little time is lost in the removal of a needy patient.

Throughout the workshops in the yard, posters have been placed so that the yard workmen may be instructed in appropriate measures in safeguarding their health and preventing accidents. The safety engineer has been in cooperation with the medical officer throughout the year, and as a result many safety devices have been suggested and actually placed in operation, and it is gratifying to state that there has been a minimum of serious accidents. The medical officer has encouraged yard workmen to state their grievances regarding death-dealing machines. Consequently, whenever a suggestion has come from one of these men, the medical officer has always investigated the case in question and has taken up the matter with the head of the department concerned and the safety engineer. The yard workmen are made to feel that the medical department is at all times ready to aid them when practicable.

*Receiving ship and training camp, navy yard, Philadelphia, Pa.*—The receiving ships of the Navy are the distributing centers for the personnel. It can, therefore, be readily seen that the duties of the medical department are especially important in the following respects:

No man is transferred from this station unless he has a health record, unless typhoid prophylaxis and vaccination is complete, and he is free from venereal or infectious diseases and not a direct "contact" with infectious diseases. The receiving ship at Philadelphia supplies most of the drafts for foreign stations. It is, therefore, especially important that the procedures outlined be most carefully carried out so that only effectives will be transferred overseas. The clerical details in handling health records for prophylaxis, transfers, discharges, and reenlistments on this station, where the total incoming and outgoing men for the week often averaged over 2,000, together with the care of the men in the sick bays and the medical examination of incoming and outgoing drafts, constituted a vast amount of labor for the medical department of the receiving ship and required that this work be properly systematized.

There are eight assistant medical officers doing duty at the receiving ship and its extension, the training camp. It is considered that with a complement of between 600 and 7,000 men and the work of inspecting and handling the drafts of incoming and outgoing men, of quarantine of infectious diseases, of daily examinations of contacts, together with the treatment and disposition of the sick in dispensary buildings, this number of medical officers is not excessive. There are three dispensary buildings in commission, and two more are contemplated.

Through the winter arrangements were made with the Episcopal Hospital of this city to receive four hospital corpsmen at a time for a four weeks' course in laboratory work, operative technique, first-aid work, and diets for the sick. These men lived in the Episcopal Hospital while taking the course, and they were greatly benefited by the opportunities thus afforded.

As outlined in last year's report a permanent isolation camp has been established consisting of six barrack buildings, three galleys, and two toilet and wash-room buildings. This group of buildings is separated from the main camp by a high board fence and a second high board fence separates it into two units. It has been found that one of these units is sufficient for the isolation of contacts with infectious diseases, as our present policy is to isolate the 8 or 10 men most closely associated with an infectious case and keep them apart until the period of incubation of the particular disease has elapsed. At one time it was our policy to isolate an entire draft when an infectious disease developed but this proved inadvisable, as too many men were kept on the unavailable list. It has also been found that the practical results obtained by the isolation of 8 or 10 immediate contacts equal the results obtained by the isolation of entire drafts.

Owing to the fact that liberty is granted very frequently and drafts are received often and have usually been some time in transit, the percentage of admissions for venereal diseases has been high. No man is transferred from this station unless he is free from venereal disease in active form. In consequence of this and with the large number of incoming cases and those which develop on this

station venereal cases have been numerous. The average of venereal patients under treatment throughout the year has been about 165.

At frequent intervals medical officers have given lectures on venereal diseases and venereal prophylaxis to different groups of men in the camp.

A brief outline of these lectures is as follows:

1. Description of the diseases and their effects in after life.
2. Necessity of early treatment and avoidance of quacks or attempts at self-treatment.
3. Safety is guaranteed only by keeping out of the way of infection.
4. A brief description of prophylaxis as used in the Navy emphasizes its value when used promptly.
5. Attention is called to the fact that every man normally has a sexual instinct and a play instinct, and when the play instinct is developed by athletic games and clean amusement the sexual instinct becomes less prominent and is more easily controlled.

*Navy yard, Portsmouth, N. H.*—Owing to war conditions the industrial department was greatly expanded and the number of civilian employees considerably increased during the year. On December 31, 1918, there were 4,891 employees on the rolls, an increase of 1,632 during the year. The largest number of employees at any one time was 5,722 on October 15, 1918. An innovation was the employment of women, the largest number at any one time being 1,050 on October 31, 1918. On December 31, 1918, there were 603 women on the pay rolls. Due to the great expansion of the industrial department, the washing and water-closet facilities of the various shops and buildings were badly overtaxed, particularly in regard to the female employees. This condition was further aggravated by the difficulty of obtaining plumbing supplies because of war conditions. Sanitary drinking fountains were gradually installed and it is hoped that the time will come when all water coolers and the common drinking cup can be eliminated from the yard. During the year the yard lunch room has been greatly enlarged by new construction so that about 500 employees can be seated at one time. Modern equipment has also been installed.

During the year a large addition to the dispensary was built. The building, which is of permanent construction, was completed last June within the contract time of three months. At this writing, it is undoubtedly the most modern and complete navy yard dispensary in the service. On the first floor are waiting rooms and treatment rooms, a well-equipped operating room, a four-bed ward for emergency cases, and a lavatory containing up-to-date and substantial plumbing. The second floor contains offices, laboratory, board room, a two-bed ward with a bath room for women and a lavatory. The third floor has three rooms for hospital corpsmen and a bath room. The basement is fitted with storerooms. The four rooms in the old part of the building are used for office, record room, officer's waiting room, and pharmacy. A part of the equipment of the dispensary is a modern automobile ambulance.

The total number of civil employees visiting the dispensary during the year was 7,860, and of these 5,497 were cases of injury and 2,363 were cases of illness. These figures represent original cases and do not include re-dressing, subsequent visits of employees to the dispensary, or visits of medical officers to injured employees in their

homes, or the care of injured employees in the naval hospital. In accordance with the provisions of the act of Congress, approved September 7, 1916, and the interpretation thereof by the United States Employees' Compensation Commission, the medical department of the yard has cognizance of practically all cases of injury occurring in it. There are, however, employees who, either intentionally or through ignorance, do not report their injuries.

The total number of the general court-martial prisoners in the naval prison on December 31, 1918, was 2,007, an increase of 700 over the corresponding period of a year ago. The largest number of prisoners at any one time during the year was 2,518 on August 5, 1918. During the year five 1-story H-shaped barracks and two 2-story H-shaped barracks have been completed. These temporary structures have greatly relieved the overcrowding. Nevertheless, conditions have to be carefully watched to prevent the introduction and spread of infectious diseases. During the past month, the prisoners heretofore quartered on the *Southery* have been transferred to the naval prison. The medical department of the prison has been expanded and enlarged by the rehabilitation of the whole second floor of the main building (tower) and now consists of a large ward of 27 beds, an isolation ward of 6 beds, waiting room, examining room, offices for the psychiatrist, medical and dental offices, pharmacy, and medical storeroom. Recommendations for the construction of a detention barracks are renewed so that new arrivals may be kept under observation to prevent, if possible, the introduction and spread of communicable diseases.

Attached to the yard is an experienced psychiatrist whose services are available in all cases where there is any question of mental disorder. A great deal of his work has been done in connection with the naval prison. A short previous history of every prisoner is taken, and over 500 prisoners have been thoroughly examined and have undergone a period of observation. The majority of these men show positive evidence of disease at the central nervous system level, and groups of psychopathic cases are being discharged by medical survey each month. The work of the psychiatric department is regarded as very important, and it is expected that its sphere of usefulness will be enlarged upon the completion of the buildings now under construction for the observation of patients.

A conference was held at this yard on March 30, 1918, by representatives of the States of Maine and New Hampshire and representatives of the Navy Medical Department. It was unanimously agreed that sanitary conditions in the vicinity of the navy yard were detrimental to the health of the military and industrial personnel, and that a health zone should be established similar to those surrounding other military stations throughout the country. Those participating in the conference were Dr. D. E. Sullivan, of Concord, N. H., representing the State board of health of New Hampshire; Dr. L. D. Bristol, of Augusta, Me., the State commissioner of health of the State of Maine; A. P. Pratt, of Portland, Me., district health officer of the southwestern district of Maine; Passed Assistant Surgeon W. M. Bryan, United States Public Health Service; the district sanitation officer of the first naval district and the medical officer of the yard, Commander F. M. Furlong, Medical Corps, United States Navy.

The result of this conference was the establishment of the "Portsmouth-Kittery civil sanitary district," which is similar to the extracantonment zones placed about most of the Army and Navy camps and stations throughout the United States.

*Navy yard, Puget Sound, Wash.*—The medical department of the thirteenth naval district, assisted by public-health officials having, by the use of anti-influenza vaccine, produced some very startling results in connection with the training camps in the yard, it was thought advisable to accord the privilege of taking this to the yard employees, if they wished it. A notice was sent to each individual giving him a definite date to report if he so desired, and as a result we completed 1,732 inoculations among the yard employees. As a result of our efforts at that time, during the second wave which followed in November, the health of the employees was very much improved, and approximately not over 100 were compelled to lose time because of influenza and then only for short periods. No deaths, to our knowledge, have occurred among those employees who have taken the vaccine.

The total number of injuries treated was 15,810. This is very materially in excess of the report for 1917, but it is due to the increased number of employees during the year, especially for the period from May to November, when the number employed was largest and there was more overtime work to turn out submarines. Besides the overtime men the majority of the men who were employed in this yard during the above period had come from the Middle States, most of them without experience of machinery and therefore more liable to minor injuries.

Disability pay allowed for 12 months, December 1, 1916, to November 30, 1917, amounted to \$3,724.75. Disability pay allowed for 12 months, December 1, 1917, to November 30, 1918, was \$7,834.28. The low disability pay in comparison with the number of accidents, the number of men employed and conditions under which they worked is due to better environment for efficient handling of the cases afforded by the new addition to the dispensary.

*Duty with Bethlehem Shipbuilding Corporation, Quincy, Mass.*—On January 1, 1918, a dispensary was opened for the officers and enlisted men of the United States Navy on duty at the Fore River plant of the Bethlehem Shipbuilding Corporation. At this time the personnel of this station numbered 64 officers and 267 enlisted men, divided principally between (1) the cost inspection office, consisting almost wholly of reserves; (2) those attached to the office of the inspector of machinery, made up of regular naval officers and men acting as subinspectors, officers and men awaiting destroyers and submarines under construction; and (3) officers and men attached to the naval constructor's office. Shortly after the school was opened it was found on inspection that the sleeping shacks were overcrowded, the ventilators blocked with paper, the pipes in the washhouse frozen, and the doors not being kept locked, that the yard workmen had used it as a water-closet. The latrine had become filthy in the extreme. A report was therefore made to the senior officer present who was the inspector of machinery. The conditions were brought to the attention of the general manager of the corporation

with the request that they be remedied. No action, however, was obtainable, and after numerous protests the commanding officer of the school asked the Navy Department for a new building adapted to the present needs and future possibilities of the school. This being granted, plans were prepared for a building 73 by 33 feet with two floors, the ground floor fitted with offices and schoolrooms and the second floor to be used as a dormitory. On September 2, 1918, ground was broken for this building, and on October 17 it was completed.

As most of the men lived in private houses, more or less supervision of the sanitary conditions of the entire city of Quincy has been necessary. It should be remembered that shipbuilding is the principal industry of Quincy, and that owing to the war there was a rapid increase of the population, reaching as near as can be estimated to about 100 per cent. The facilities for housing, therefore, have been strained to the utmost. In some instances men have slept in relays, a member of the night gang occupying the bed through the day and at night giving place to the day gang. In like measure the eating places have been crowded almost beyond capacity in order to accommodate those who had but a limited time at the midday meal. The result was that practically every restaurant, especially in the neighborhood of the plant, very quickly became absolutely insanitary. In many instances the buildings themselves were poorly equipped and poorly ventilated. All these factors were interesting to the medical officer in determining the cause of the numerous cases of intestinal disturbance occurring throughout the year in the Navy personnel attached to the plant.

Early in September influenza assumed epidemic form. It was thought best to isolate as far as possible every man who could be deemed suspicious in any way. Each case, therefore, was sent home at once. Then when a positive diagnosis was made the patient was removed to the naval hospital or if his surroundings permitted and were favorable he was treated at home either by the naval medical officer or his own physician. The total number of cases during the months of September and October was 131 out of a total personnel of 880. There were three deaths.

By this time it had become necessary for the city of Quincy to ask for outside help. In response, the Navy Department detailed six assistant surgeons and eight hospital corpsmen to assist. Four buildings completed for the Emergency Fleet Corporation had been set aside for use as hospitals, and 15 nurses from Philadelphia had arrived. It was decided to place the entire situation in the hands of the Navy Department. By vote of the board of health the naval medical officer of this station was made health officer of the city of Quincy for the duration of the epidemic and given full power to carry out such measures as he deemed necessary. He at once asked the Navy Department for more assistant surgeons and the Red Cross for nurses.

All together the personnel included 18 doctors (11 of them assistant surgeons of the Navy), 4 medical students, 126 nurses, 3 stenographers, 3 telephone operators, 8 enlisted men (some of whom were hospital corpsmen), and 3 sanitary inspectors, besides guards and volunteers for various duties. Of great interest to the naval medical officer was the inspection of the dairies and milk supply. Some of





DISPENSARY TYPE OF WARD. U. S. NAVAL AIR STATION, ROCKAWAY BEACH, LONG ISLAND, N. Y.



DISPENSARY, U. S. NAVAL AIR STATION, ROCKAWAY BEACH, LONG ISLAND, N. Y.

the former were so filthy that they were closed entirely until they could be made sanitary, while a bacterial examination showed that much of the milk supply had a very high bacterial count. In one case this amounted to 13,000,000. The State allows but 500 per cc. In another case the bacterial content was 840,000, made up almost wholly of streptococci. Moreover, the restaurants, which have been described as most objectionable, had been using this milk all summer.

In one week from the time the Navy took charge the height of the epidemic passed, and from that time to the close the number of cases steadily fell, until on October 28 the naval medical officer, feeling that the epidemic had passed, relinquished his temporary appointment to the city of Quincy.

*The United States Naval Air Station, Rockaway Beach, Long Island, N. Y.*, was commissioned on October 15, 1917, with 2 officers and 20 men. The station is located on the extreme west of Long Island, on the south shore of Jamaica Bay. The site is 15 feet above sea level, surfaced with coarse white sand which has been washed from the bay.

The general health on this station has been excellent, except during the month of October and the first part of November, 1918, when the epidemic of influenza was flourishing.

On September 26 the recreation room was taken over by the medical officer and put in order for a hospital ward. An emergency requisition was rushed through and a truck sent to the medical supply depot at Brooklyn, N. Y., on the same day for bedding to fit out this room. It has an area of 13,499 cubic feet; 25 beds were fitted out completely and the influenza patients isolated. Never at any time were there more than 25 patients, so we were able to handle them very nicely in the above room. The cases of pneumonia were isolated in the sick bay.

The men were urged not to take their liberty and forbidden to ride in the subway trains or to attend public gatherings. No meetings or general assemblies were permitted on the station. Every man was forced to wear a gauze mask over the nose and mouth at all times, and every patient was isolated as soon as he showed any signs of coryza.

Overcrowding in barracks was not permitted, the extra men being quartered in tents, and bedding was put out in the sunshine every day when the weather permitted.

The barracks were scrubbed thoroughly each week with cresol. The duties of the crew were made as light as possible compatible with the upkeep of the station.

Venereal disease: The proximity of the station to Rockaway Beach, which is a summer resort, and to New York City renders it particularly liable to diseases of a venereal type. Considering that the complement is composed chiefly of raw recruits, who have had very little, if any, training along the lines of venereal prophylaxis in the Navy, preventing venereal infection presents rather difficult obstacles.

Frequent venereal inspections have been held. We have found that 67 per cent of the gonorrheal infections have come in with the drafts from other stations over which we have no jurisdiction. There has been a tendency among a few medical officers in this district during the past year to permit men to be transferred with acute venereal diseases.

A special effort has been made by the medical officer to apprehend all women afflicted with venereal disease who associate with the men, according to the laws of the State of New York. This effort has met with only one satisfactory result, i. e., that these people now refuse to associate with the sailor.

One room in the sick bay is set aside and equipped as a venereal room, which is kept open at all times for men who wish venereal prophylaxis. Printed instructions relative to the use of different agents are posted in said room.

Diphtheria: The Schick test was given to 1,180 men in November to determine their susceptibility to diphtheria. Three hundred and six men, 27 per cent. showed a positive reaction. (The doubtful cases were counted positive.) To these men a prophylactic dose of diphtheria toxin-antitoxin was administered in two doses intramuscularly; 1 c. c. for the first dose,  $1\frac{1}{2}$  c. c. for the second dose. The reaction was quite severe in some cases, but no serious results were observed. This step was taken to preclude any epidemic of diphtheria.

Sanitation: The southern quarter of the field is taken up by a swamp which is rather difficult to drain. During the summer months the surface of the water is covered with kerosene every 13 days, which serves to kill the larvæ of the culex mosquito. This mosquito is the only type found here. Small ditches are dug through the marsh in which the water collects; this saves oil by lessening the amount of marsh surface to be drained.

The total capacity of the various barracks, permitting 450 cubic feet per man, is 810 men. On December 31, 1918, there were 1,019 men, showing that the barracks were overcrowded by 209 men. These men were quartered in tents as long as the weather permitted.

A very strenuous effort has been made throughout the year by the medical officer to prevent more men being quartered in the barracks than what was intended, but he met with only partial success except during the influenza epidemic.

The tendency throughout the year has been to send more men here than could be properly quartered. A daily sanitary report in writing has been made to the commanding officer showing the cubic area, capacity, complement, and condition of each barracks. It is recommended that the station complement be limited to 800 men.

The men are well supplied with clothing suitable for the functions which the various details perform. The men that are flying have fur-lined suits, gloves, shoes, etc., sufficient to protect them from exposure. The men on the beach who are in the water are supplied with rubber boots. All other details are equipped accordingly. The texture and durability is apparently satisfactory. There is no ship's laundry provided as yet, but there is one contracted for. A wash room is provided that will accommodate 100 men at a time. It is supplied with both hot and cold fresh water.

The sick bay is situated on the east side of the main street near the central part of the station yet far enough from the shops and hangars to avoid annoyance to the patients by the noise caused by the machinery. The building is a one-story frame structure. It is well equipped with windows and doors and heated by hot-water radiators supplied by the main station plant. This is sufficient and well regu-

lated. Light, both natural and artificial, is sufficient. The electric light is supplied by the main plant. Ventilation is ample. The building is finished with yellow pine which is kept in a neat condition by frequent applications of varnish. The laboratory, toilets, bath-rooms, and diet kitchens are finished with white enamel.

Patients who can not be cared for in the sick bay are transferred to the United States Naval Hospital, Brooklyn, N. Y., which is 32 miles distant, for treatment. This is done by means of an ambulance which was presented to the medical department of the station in July by the American Red Cross Society. This ambulance is of the Ford type; it is equipped, in a way, to carry four patients. The patients are placed on litters of Army style, which fit this type of ambulance. The machine is heated by an apparatus connected with the exhaust from the motor.

When there is any aircraft flying a boat is held in readiness to put to sea. This boat is a sea sled which is quite rapid.

A hospital apprentice is assigned to this boat with first-aid equipment at all times when the operations demand. Every flying machine is equipped with a first-aid and emergency box, and each aviator is supplied with a life-saving jacket.

*United States Naval Air Station, San Diego, Cal.*—For the sake of convenience the facilities for caring for the sick were divided into two separate units, a dispensary and a hospital. The dispensary is located in building 22, one of the main barracks, and is composed of two small rooms with facilities for caring for minor ailments and giving dispensary medication to ambulatory cases. Here sick call is held three times a day, and venereal prophylaxis and treatments are given. The hospital is located at the far end of the station and affords the necessary quiet and isolation. The hospital contains 14 small rooms used for executive offices, dental office, examining room, storeroom, linen closet, etc. There is a ward capable of holding 11 beds and two screened porches, holding 5 and 3 beds, respectively. Near the hospital are two separate tent camps. The one immediately contiguous to the hospital is composed of 7 small and 4 large tents and can be expanded to 30 tents. This camp receives the overflow from the wards and the ambulatory cases admitted to the sick list. The more remote camp contains 30 tents, each holding 2 men using hammocks. It is surrounded by wire netting and was utilized during the recent epidemic of influenza for isolating drafts arriving on the station. A double head placed between the two camps and well suited for complete isolation of either camp is in use. A small diet kitchen in the hospital building was used to mess patients and hospital corpsmen but proved inadequate. During the influenza epidemic a temporary building for galley and mess hall was erected at one side of the main building and since that time has been in constant use. While it was intended for a temporary affair, and as such is simple and lacks many conveniences, it has become indispensable and a more substantial building will be erected immediately to replace it.

*United States Naval Training Camp, San Diego, Cal.*—During the year many changes have been made in the dispensary. A surgical ward of 14 beds was added to the surgery. Owing to the climatic conditions this ward was constructed with the idea of having the patients out of doors as much as possible. French windows, which

open on a porch, permit the easy transfer of patients from the ward to the open air where they are exposed to the sunshine. There is no roof over this porch, and as humidity is one of the objects we try to fight against in the buildings, the constant beating of the sun upon the porch has made it a very attractive place for the after-treatment of surgical cases. It has been noted many times that when patients are restless and unable to secure comfort in the ward, the mere shifting of them to this porch is sufficient to put them at ease and frequently induces sleep. For this climate the plan is admirable.

The operating room has been enlarged by one-fourth of its original size. The nose and throat operating room was made by cutting off a part of one of the old wards in the main building. The main surgery has been floored with a woodstone preparation and is giving excellent service.

The main hospital building has been improved by being thoroughly cleaned and painted on the inside during the summer months. Concrete pavement stretches across the way to the annex tents and has removed the disagreeable dust and improved previous conditions.

The old isolation camp has been abandoned, and a new one is nearing completion. Its location on a tongue of land surrounded by ravines makes it ideal for the purpose. The five 30-bed wards have been tried out during the influenza epidemic, and have shown their practical value. One hundred and fifty cases can be cared for in this building and 217 cases can be cared for under canvas. Forty-two more cases could be added to this in case of emergency as one of the paddocks is used for hospital corpsmen.

Total number of men received to Dec. 31, 1918.....	9,997
Total number of men transferred.....	6,931
Total number of men invalided from the service.....	891
Total number of men transferred to other hospitals.....	72
Total number of men remaining.....	3,442

*Medical activities for the year, all disabilities.*

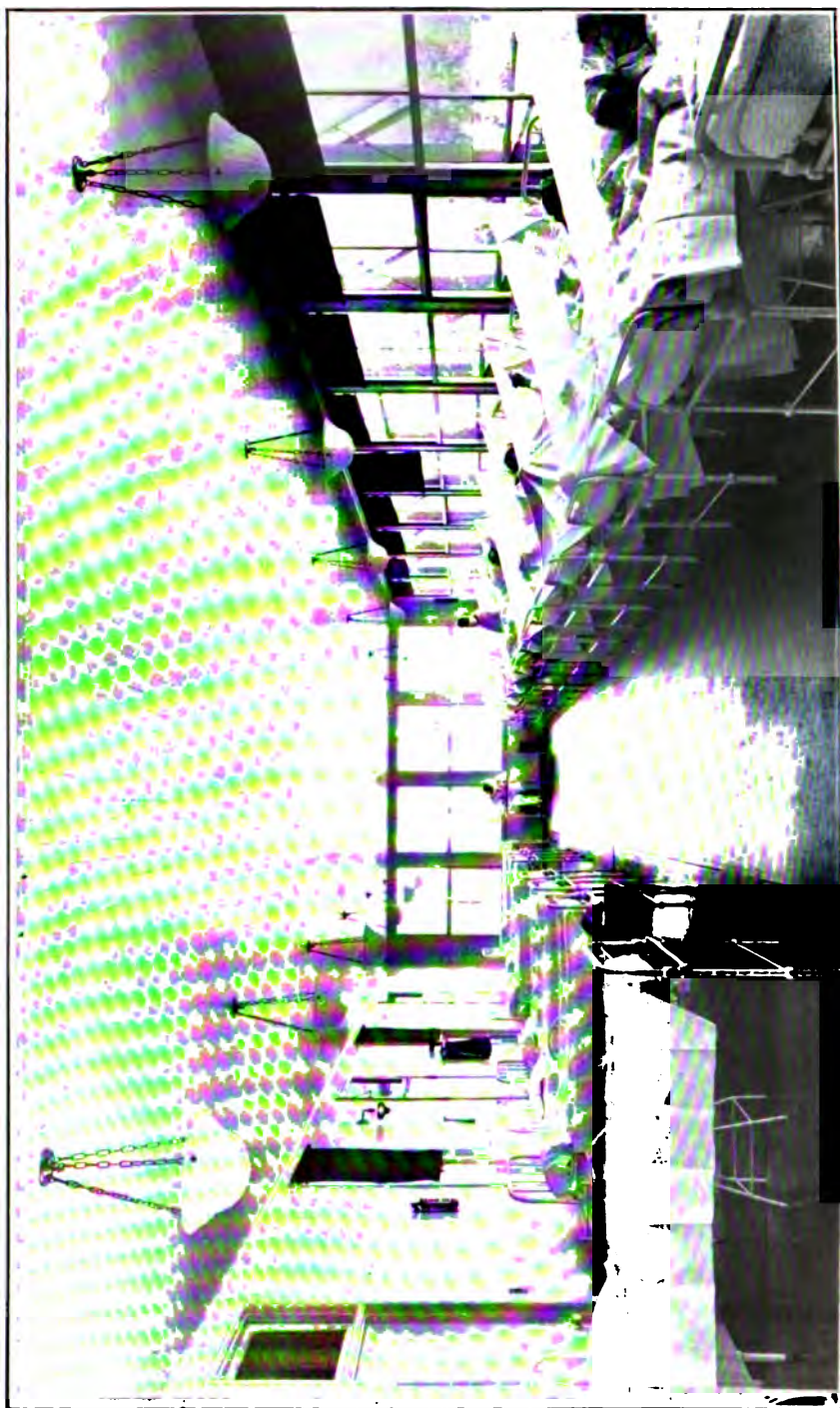
Admitted .....	7,125
Readmitted .....	1,159
Discharged to duty.....	7,415
Change of diagnosis .....	742
Died .....	63
Invalided from the service .....	891
Transferred to other hospitals .....	72
Continued to next year.....	232
Total sick days.....	104,554
Percentage of sick .....	2.41
Total laboratory examinations.....	11,690
Total men given typhoid prophylaxis.....	8,799
Total men given cowpox vaccinations.....	8,943
Venereal disease:	
Gonorrhea (urethra).....	180
Gonococcus infection of conjunctiva.....	1
Gonococcus infection of epididymis.....	1
Syphilis.....	96
Chancroid.....	18

The venereal list is low. It is attributable to several factors, namely, lectures on the subject of venereal disease; the high type of enlisted personnel, who can understand the meaning and profit of continence; the efforts of the health department of San Diego to keep the town clean by the care of prostitutes in a special hospital known as Mission Valley Hospital.





BRIGHT, WELL VENTILATED WARD IN EMERGENCY-TYPE HOSPITAL. U. S. NAVAL TRAINING STATION, SAN DIEGO, CALIF.





The United Service Hospital, in which the families of Army and Navy personnel have been cared for, deserves mention from the individual standpoint of the Navy, as an appreciable spirit of comfort has been extended to the personnel of our service through this agency. The idea of establishing such a hospital had its inception in a local organization of women called the "talent workers" whose president was farseeing enough to realize the need of such an institution and brought the project to the attention of the Army and Navy authorities in and about San Diego where it received a welcome. The Army has three resident physicians in this hospital, and the Navy one. The wives of officers and enlisted men may go to this hospital for their confinements. Surgical cases are cared for as well, and there is an outdoor dispensary for ambulant cases. The charge for a bed is \$12.50 per week for officers, and \$1 per day for enlisted men. In case payment can not be made, the local chapter of the Red Cross pays the bill, and moreover the Red Cross has been generous in equipping the hospital and stands ready to make up any deficit that may be incurred in the running expenses.

Strange as it may appear, this hospital has been practically self-supporting. This has been made possible by the spirit of the "talent workers" organization which contributes to the many necessities that arise in the work of a hospital. Nurses donate their services free; various types of female help give a day or two of their services. The labor unions sent workmen to remodel the dwelling house into this temporary hospital. The laundry union does all the laundry work of this hospital free. Various young ladies have contributed clerical assistance for the necessary paper work of the institution. Other labor unions have done their quota, and the spirit of desiring to help this institution during the war was evident on all sides. Naturally, at times, services had to be paid for, but generally speaking one had but to let the wants of this institution be known and helping hands were ready to assist.

The city of San Diego deserves to be thanked for having created an institution which bound civilians, Army, Navy, and Red Cross into a single purpose for the care of those dependent on the men who went away to fight our battles. From various sources it has been ascertained that such a hospital fills a long felt want, and may well seek Government recognition. It surely adds to the officer's and enlisted man's efficiency to know that there is a place for their families to go to when sickness comes during his absence, and that capable medical officers are going to care for his wife and children, and that they will have all the nursing the Red Cross can offer.

The Army and Navy medical officers in addition to their duties at the hospital make calls at the homes of families in and about San Diego. The work that has been done is shown in the following report:

Average visits to families outside of hospital, per month.....	1,200
Patients seen at clinic, per month.....	400-600
Hospital bed patients for 7 months.....	300
Total number of babies for 7 months.....	96

For seven months, the Navy part of this work is shown as follows: House calls, 905; clinical patients seen, 641; operations performed, 56; contagious diseases other than influenza, 2; influenza cases, 40;

visits to patients at Agnew Hospital, 5; obstetrical cases, 41; and Caesarian section, 1.

*United States Naval Training Station, San Francisco, Cal.*—The following table shows the average complement by quarters for the year.

First quarter.	Second quarter.	Third quarter.	Fourth quarter.
2627	3333	5656	4105

There were 197 medical surveys held during the year. The following list shows the most frequent disabilities:

Heart diseases .....	25	Golter .....	10
Pes planus .....	22	Gonococcus infections .....	9
Epilepsy .....	16	Neurosis of bladder .....	7
Tuberculosis .....	15	Imbecility .....	6
Ankylosis of joints .....	12	Syphilis .....	4

Below is a table showing admissions for acute infectious and contagious diseases.

Mumps .....	864	Syphilis .....	48
Bronchitis, acute .....	540	Pneumonia, lobar .....	27
Gonococcus infections .....	270	Pneumonia, bronchial .....	23
Tonsillitis, acute .....	211	Cerebro-spinal fever .....	3
Measles .....	139	Diphtheria .....	2
German measles .....	107		

During the months of October and November, 118 hospital corpsmen were temporarily transferred from this station to the headquarters of the twelfth naval district for duty during the prevalence of the influenza epidemic. Twelve of these men were assigned to strictly naval duties, while the remainder were distributed among the hospitals, to ambulance service, and emergency sick quarters in San Francisco and Berkeley. They did their work satisfactorily and several letters of appreciation have been received from grateful persons who were under their care. It afforded them an opportunity to acquire experience in nursing the sick at institutions under civil control. Seven mild cases of influenza developed among the 118 men in these details.

Upon the appearance of four cases of epidemic influenza in the city of San Francisco on September 23 and upon the recommendation of the senior medical officer the station was placed in strict quarantine. A vaccine was prepared and in October the entire personnel of the station was vaccinated. The quarantine was lifted on November 21. While nearly every city in the country and other military stations suffered from this dreadful disease, this station enjoyed the enviable distinction of being free from it. During the two weeks from December 6 to 19, inclusive, we diagnosed 25 cases and suffered 2 fatalities. Fifty volunteers were supplied to an influenza commission for experimentation to determine the etiology of the disease. No cases developed as a result of the attempts to inoculate these men.

*Virgin Islands of the United States.*—Most important work is being carried on by our naval medical officers in helping to discharge our national obligation to better the general condition of the people

in the territory acquired from Denmark. The first step in laying a solid foundation for work in preventive medicine is the preparation of vital statistics based not alone on mortality tables but on a wide study of the diseases prevalent in a given locality and the conditions which they represent. This is being done. A nomenclature has been prepared and printed and certain diseases especially those of an infectious or contagious character have been made reportable. This reporting was very thoroughly carried out under the Danish administration, but there was room for considerable confusion in the case of certain diarrheal diseases which were not differentiated with sufficient accuracy. It is worthy of note that vaccination against smallpox has long been practiced in the most painstaking way by Danish physicians with the result that smallpox is nonexistent in the islands to-day. The community is the most perfectly protected against smallpox of any in the world. The primitive method of handling and distributing milk and the defective practices in vogue in the disposal of sewage make typhoid fever a constant menace. A wholesale vaccination against this disease was instituted by the chief municipal physician and carried out in 1918 beginning early in August after a lively epidemic in St. Thomas. The inhabitants of St. Thomas between the ages of 5 and 45, some 6,748 souls, were vaccinated within a period of 2 months and there was not an untoward incident during the campaign. The vaccine was prepared at the United States Naval Hospital, St. Thomas, from local cultures, and consisted of 24-hour-old bouillon cultures rendered sterile by heat and later carefully tested for sterility. Forty persons presented certificates to establish their immunity and be excused from being vaccinated. Of 46 cases of typhoid fever in the local epidemic, 39 belonged to the group which had been excused. The result of the campaign has been to immunize, at least temporarily, 98.5 per cent of the population of St. Thomas.

An important step during the progress of the epidemic was the compulsory hospitalization of all declared cases not only to insure adequate treatment of individual patients but to counteract the danger of the disease being widely disseminated through the presence of pathogenic organisms in feces improperly disposed of. The patients were kept at the hospital until the excreta were found free from Eberth's bacillus.

There is a crying need in the Virgin Islands for a wise but liberal expenditure of funds in the interests of sanitation. Provision must be made for proper sewage disposal and the question of water supply must be carefully considered. The people, too, must be educated along these lines.

Early in the fiscal year 1919 the practice was begun of requiring midwives to serve in the obstetric wards of the municipal hospitals. When a call is received for a midwife she goes in an ambulance and brings the patient to the hospital where delivery is accomplished under conditions more favorable than those afforded by the average domicile. It is expected that this measure will lower the mortality of mothers and infants. All babies born in hospitals and, as far as possible, all those in the islands are carried as dispensary cases during the first year of life with the purpose of improving and regulating their feeding, controlling, weaning, etc. The milk supply of the

islands is being improved by the exercise of medical and sanitary control.

Examinations of citizens applying for enlistment in the Navy has demonstrated that the average male adult is physically below par. Measures looking to improvement must be begun in infancy and carried out through childhood and adolescence. To this end study of the school population has begun. Physical examinations are being made at the rate of 200 a month. They show that certain defects are very common. In a great many instances umbilical hernia, inguinal adenitis, and lordosis occur in the same individual.

*Navy Yard, Washington, D. C.*—Out of a complement of more than 10,000 employees in the year 2,831 were stricken during the influenza epidemic. These cases were for the most part sent to their homes and given over to the care of private physicians. An effort has been made to determine the fatality among the employees but no reliable data can be found.

The need of a new dispensary, as has been repeatedly pointed out, is most urgent. The present antiquated structure is poorly arranged and hopelessly inadequate. There is frequent embarrassment on account of the lack of privacy for consultation purposes. This is now daily accentuated on account of the large yeoman (f) personnel of the yard. During the busy hours of the morning many officers, their wives, enlisted men, and yeoman (f) appear for consultation and treatment. The place is often crowded to a point of embarrassing confusion. Plans have been submitted for a new dispensary building and, although the site has not been definitely decided upon, the plans evidently will meet requirements and it is hoped that this year will see the new building an accomplished fact.

The hygiene and sanitation of the yard is such that occupational diseases in the ordinary acceptance of the term are not to be found. There have been no diseases traceable to the noxious fumes of gases or the like. There have been no cases of heat exhaustion or heat prostration due to high temperatures.

With reference to giving first aid on the spot, the shops are provided with tourniquets, and also stretchers. The question of first-aid bandaging on the spot has been considered, but since an ambulance is available at all times and can bring the injured from any part of the yard to the dispensary within three or four minutes, it has been decided that wound dressings had much better wait until the patient reaches the dispensary. The less handling a wound receives by nonexperts the better. The injured are brought to the dispensary and all wounds properly dressed without delay. This is considered to be the wisest plan and bandaging in the shops of this particular yard is discouraged.

The lunch room provides suitable and nutritious food at prices which when compared with those prevailing in the average city restaurant are most moderate. The cost of one substantial meal on the outside would procure at least two in this lunch room. In fact, it is the custom of the 8 a. m. and 4 p. m. shifts to come to the lunch room for their breakfasts. The cafeteria system is in vogue and upward of 7,000 are served here during the 24 hours without the slightest confusion or complaint. There have been but few complaints as to the character of the food and these are of a trifling na-

ture and not well founded. There have been no digestive disturbances or other ills traceable to food served here. The fittings of the establishment, although meeting requirements from a sanitary point of view, still leave much to be desired. They should be replaced by such as are found in the up-to-date lunch rooms in our large cities. The wooden counters, tables, etc., should be white enameled metal; the employees should be required to wear neat white uniforms. A bad feature in the lunch room is the accumulation of dirty dishes on the tables. These must be carried in small quantities to the dishwasher, several hundred feet distant, by a limited number of attendants, at unnecessary cost of time and labor. A traveling belt or conveyor running directly to the dishwasher from the tables would correct this. Lunch carts are provided to convey food to operators in the several workshops who can not leave their work for their meals. These are crude wooden affairs with no facilities for keeping the food warm during transfer. Modern metal lunch conveyors with insulated hot-water containers to keep the food warm should be provided. The building in which the lunch room is now situated can not well be adapted to modern sanitary requirements and could be better used as a pattern shop as originally intended. A separate building centrally located and devoted exclusively to restaurant purposes with modern equipment and a seating capacity of 1,500 should be provided.

The average complement of enlisted personnel was 1,035. There were 800 admissions to the sick list for all causes, of which 49 were for injuries and 16 readmissions. The total number of sick days was 3,736; the percentage of sick 0.009; 471 were returned to duty; 329 transferred, and 13 invalided from the service. There were three deaths, two from drowning, and one from pneumonia following influenza. There were 208 examinations for reenlistment in the Navy, 3 for reenlistment in the Marine Corps, and 9 original enlistments in the Navy, in all 220 examinations.

As mentioned before, there is great difficulty in securing even reasonable privacy for consultation, and the medical officer must often tax his ingenuity to the utmost to meet the situation. During the influenza epidemic from September 23 to October 10 there were 210 admissions to the sick list for the disease. The greatest percentage of illness appeared among the yeomen (f) attached to the yard. These have required treatments and visits at their homes. Those found in undesirable home surroundings, where proper care and attention could not be given, were sent to the Georgetown University Hospital. There was one death among these.

The average number of workmen employed in the yard coming under the supervision of the Federal compensation act was approximately 10,000—i. e., varying between 9,276 and 10,517, of whom 480 were clerks. There were 8,159 injuries recorded, many of which were trivial, requiring but one or two dressings. The injuries consisted of incised wounds, lacerations, contusions, and abrasions of the extremities, burns, foreign bodies in the eye, such as emery, and particles of steel, scalings, etc. The location of the injuries or parts involved are as follows: Head, 175; face, 171; eye, 1,464; feet and toes, 651; chest, 31; arm, 411; fingers and hands, 4,664; back, 131; abdomen, 169; legs, 328.

There were 50 fractures, parts involved in order of frequency being as follows: Fingers, 24; toes, 11; metatarsal, 3; metacarpal, 3; fibula, 2; both bones, forearm, 2; patella, 1; ulna, 1; clavicle, 1; rib, 1; lower jaw, 1.

As will be seen, the fractures chiefly involve the small bones of the hands and feet, due to the type of machinery used in the yard. All machines are equipped with necessary safety devices. Formerly it was the custom to investigate each and every accident, a special expert, known as safety engineer, being on duty for the purpose. This office was discontinued several months ago owing to the fact that the safety engineer has been transferred from the yard and no relief substituted. This practice should be revived.

Of the 1,464 injuries to the eye only a little more than 2 per cent involved loss of time sufficient to justify claims for compensation. Foreign bodies were by far the greatest source of injury. Several of these required the skill of a specialist, and were referred to the Naval Dispensary for treatment. So far as known, but one case, a traumatic iridocyclitis, has been followed by permanent loss of vision. Considering the large number of eye injuries during the year, the showing as to serious and permanent injury is satisfactory. Some 10 inguinal hernias occurred, each traceable to heavy lifting. There was one accident during the year that resulted fatally, a crushing injury to the abdomen due to a falling reel of heavy wire rope. In studying the tabulated injuries as presented this year one finds that the records are so arranged that one can not, by grouping, point out a particular factor whose elimination might influence the incidence of the injury. An attempt will be made during the coming year to discern by monthly tabulation and systematic examination any possible defect in our protective measures with a view to elaborating them.

Of 8,159 injuries 931 were of sufficient severity to involve more or less loss of time. There were 265 claims for compensation; 2,807 men were examined after absence on account of injury or illness and certified as being physically able to return to work; of these, 1,876 had suffered from influenza.

In connection with illness not traceable to employment in the yard and not in line of duty, 4,269 men were examined and found too ill to return to work and were sent to their homes. Of these, 2,831 were diagnosed as influenza; 18 men were sent to their homes in an ambulance; 15 were transferred to the Providence Hospital for treatment; and 31 were referred to the United States Public Health Dispensary for treatment. There were 2,195 examinations for civil-service employment in the yard.

#### MARINE REGIMENTS.

*First Regiment, United States Marine Corps.*—Within the past 10 or 12 years there has been at least one and sometimes two expeditionary forces encamped at Guantanamo Bay within each year. As a matter of economy, efficiency, comfort, health, and sanitation, properly built barracks and quarters, galleys, mess halls, latrines, urinals, storehouses, bathing and washing facilities, and proper sick quarters, transportation facilities, and above all an adequate water supply should be installed. The hospital department now

consists of three medical officers, one dental officer, and 22 hospital corpsmen. With the exception of two hospital corpsmen they have had little or no military experience, but the organization has worked out very smoothly and efficiently. The equipment consists of one Navy standard regimental field outfit, one field dental outfit, one screened hospital ward tent, one screened surgical dressing tent, one small open isolation ward tent, two open store tents, one screened-in dental tent, one venereal head, and proper living tents for the department. A small dispensary is established in the permanent headquarters building. It has an ice box and running water. The hospital should be established at the eastern end of the camp instead of so near the parade ground headquarters building and detachment for the following reasons: (1) More adequate isolation; (2) away from dust and dirt raised by the winds; (3) away from the distracting influences of the center of the camp. It would be desirable to erect a permanent or semipermanent dispensary, ward, and operating room similar to that now in use at the headquarters of the Seventh Regiment, United States Marine Corps stationed at San Juan, Cuba, and reported to the bureau in the annual sanitary report of the medical officer of that regiment. It would not be desirable to change the location of the sick quarters at Deer Point unless the above-mentioned dispensary were erected at the easterly end of the camp.

*First Provisional Brigade, United States Marine Corps, Port-au-Prince, Haiti.*—The main building of the medical department is a large rectangular brick structure with verandas on the north and south sides on both the first and second stories. The verandas on the second floor are completely screened and the weather side is provided with canvas curtains, so that the veranda on the north side is used as a ward. The second floor is divided into eight rooms. One small room is used as a dispensary and another as a linen room. The other rooms may be used as sick officers' rooms or as wards as occasion demands. The second floor will accommodate 24 beds without overcrowding, as everything is wide open and airy. There are two sanitary bathrooms on the second floor. The sewer from these leads into a large seepage basin on the hospital grounds about a hundred yards from the building. Above the second floor is a garret which is used as a storeroom. The first floor has a surgical ward of 12 beds. The west end of the building has three offices. On the second floor is the laboratory.

The entire water and drainage system is old and in need of constant overhauling. Many improvements have been made about the grounds without calling on the quartermaster. Two outside showers with cement floors have been built. Although there are extensive grounds around the hospital there is but little space suitable for tents in case of need to enlarge the capacity of the hospital. Unfortunately a large portion of the level ground is covered with various kinds of trees and the lease prohibits cutting down trees. However, in case of emergency, sufficient space for additional tents is available, although the ground occupied would not be all that could be desired. All hospital corpsmen, cooks, etc., live in tents. Electricity is available during the night, but not during the day time.

*Second Regiment, First Brigade, United States Marine Corps, Cape Haitien, Ouanaminthe, Haiti.*—Conditions at this post are excellent. This small town is very well drained and from the sanitary view-

point improves month by month. The camp site remains unchanged and water is of good quality. As the town is situated on the Dominican border, where excellent cattle abound, the food is varied and of very high order. Indeed fresh milk is now available and delivered daily, a luxury not enjoyed by other commands in Haiti.

Unfortunately venereal admissions have been relatively high at Ouanaminthe as Form F cards will testify. In fact, by far the greater number of admissions are at present due to venereal diseases. The damage to the service is also relatively high, as somewhat more than 25 per cent of sick days in this port is caused by venereal diseases and this despite all known methods of moral and physical prophylaxis.

In general, malaria gives the highest incidence of sick days. The epidemic of influenza which recently visited Haiti affected some 50 per cent of the command at Ouanaminthe. As in other parts of Haiti where marines are stationed the disease was of mild form and each case conformed to the general type with from three to four days illness.

*Cape Haitien.*—Conditions in Cape Haitien, while always satisfactory, have steadily improved. The Sanitary Corps of Haiti has undertaken the work within its province during the year and the Engineer Corps has continued the gradual reconstruction of the streets, drainage, etc. The water remains as heretofore, of good potability, but sadly inadequate as to quantity in the town itself. The camp, however, is most plentifully supplied with water, as it taps on to the supply before it enters the city mains.

About the 1st of April it was deemed best, for military reasons, to move the camp from its former site. In consequence the present camp occupies a position at the southern end of the town, well removed from native houses. The ground is well chosen, well drained because of its sloping nature and usually exposed to a breeze. All details as to comfort and health of the command have been carefully considered. Water is ample, drainage good, galleys and mess halls well constructed, and a fair sized parade ground adjoins the camp. Latrines are of the incinerator type and well protected. Showers are ample for the entire command. Through the aid of the Red Cross a large recreation building is under construction and will be completed shortly.

Regimental hospital: As in the past, malaria caused the most damage and greatest number of sick days. There were 304 admissions (about one-half of these readmissions) with 1,699 sick days. By far the greater number of cases were of the malignant type; the benign type was common and the quartan form not unknown. As reported last year a great number of our recurrent cases showed only benign parasites in the blood.

A most interesting epidemic of sand-fly or three-day disease was noted in February, while the Sixty-fifth Company was at the rifle range. At one time 17 per cent of the men were sick. The disease was subjectively like dengue but without the secondary rise and without the rash. Sand flies were a pest at this time and screening was of no avail.

Because of the rather trying nature of the service in northern Haiti, with an absence of facilities for amusement for the men, it is recommended that the period of service be limited to not more than two



years. It is understood that the present policy of the Marine Corps is to relieve the officers after that period. After a year admissions and readmissions for malaria are common and the incidence of venereal diseases appears greatest in those men who have been longest in Haiti.

*Third Regiment, United States Marine Corps, Santo Domingo City, Dominican Republic.*—Under normal conditions most of the men of this regiment are stationed in Santo Domingo City, but many changes were necessitated during the past year on account of the bandits' activities in the eastern end of the island, and while the company headquarters were still here many of the men were in the field. One company was ordered to the field and a new company organized and stationed here. There are two companies stationed and living in Fort Ozama, part of them living in tents and part in the barracks, one company living in a small barracks just outside the fort, and one company is stationed at Camp Lowe on the Receptorea Hill just outside the city.

The outside posts include San Pedro de Macoris, Seibo, and La Romana to the east and Barahona and Azua to the west. San Juan post has been abandoned. Many of the men from Santo Domingo City and men from the Fourth Regiment stationed in the northern district are at posts in the eastern end of the island. There is a medical officer at each of the permanent posts, and the temporary posts at Hato Mayor, Seibo, and La Paja are supplied with medical officers, and upon the arrival of additional medical officers other inland posts will be supplied where transportation facilities, which are necessarily very crude on account of the absence of roads, and the possibility of wounded men at any time make the presence of a medical officer very desirable. The many temporary inland posts are established for the carrying out of the present campaign against bandits and the smaller posts are changed from time to time as the military situation requires.

The field hospital, Santo Domingo City, is a base hospital supply depot and the central laboratory for the outlying posts. Chronic cases and the more serious ones which would probably not be returned to duty in a short time are transferred to the hospital by boat from the two posts of San Pedro de Macoris and La Romana which are situated on the coast. The same building is being occupied by the field hospital that was used during 1917 and it serves the purpose very well. Among the improvements in the hospital during the year was the installation of the Delco lighting system to replace the old acetylene lights, and a gasoline motor to pump water through the building. The hospital will accommodate about 40 beds, but in case of emergency, as in the recent influenza epidemic, it can be made to accommodate more.

The medical officers and hospital corpsmen have had much field service during most of the year and have conducted themselves well while on these duties, which at times are very strenuous, but they stood the long marches through rain and across mountains uncomplainingly and their first thought was always for the men in their detachments. Several of the medical officers and many of the hospital corpsmen were in numerous engagements with bandits and all behaved in a most exemplary manner.

The number of admissions to the sick list from the regiment during the year was 1,478 and the number of sick days 3,321. There were 20 cases surveyed to a naval hospital in the United States or to marine barracks for discharge from the service, and seven deaths occurred. There were nine admissions from the Fourth Regiment with 288 sick days.

The prevailing diseases have been malaria, dengue, and venereal disease, 12.5 per cent of the sick days were due to venereal diseases and their sequelae, 9 per cent to dengue, 31.3 per cent to malaria. There were 30 cases of acute follicular tonsillitis, measles 5, tuberculosis 6, dysentery 5, and pleurisy 4.

Venereal infections accounted for 16.1 per cent of the total number of admissions and 12.5 per cent of the total sick days. The prostitutes were removed and segregated to a distant part of the town. All prostitutes are registered and examined several times a week by Dominican doctors under direction of the city's sanitary service. They are required to keep a card on which their condition is noted, and when infected they can receive treatment in the military hospital in the city.

Malaria accounted for 24.9 per cent of the total admissions and 31.3 per cent of the total sick days. Most of the cases were infected while on field or outpost duty. The benign tertian parasite was found in all cases examined and all responded readily to quinine treatment by mouth or intramuscularly.

Dengue fever accounted for 14.7 per cent of the total admissions and 9 per cent of the total sick days. Nearly all of the cases occurred among the men stationed in Santo Domingo City, the number for each month remains fairly constant. The disease was occasionally followed by a period of anemia and malaise, but the majority of the cases were of a mild type.

*Fourth Regiment, Second Provisional Brigade, United States Marine Corps.*—The headquarters of the regiment are at Santiago, Dominican Republic. Some 9,000 square miles of territory and 480,000 inhabitants are policed and regulated by this regiment, which is divided into eight or nine groups scattered throughout the Province.

The field hospital, Santiago, acts as a regimental base hospital, where all serious cases among the marines and native constabulary are sent and in addition acts as a medical supply depot supplying medical stores to the different posts. The old hospital buildings were found inadequate, and a new location better suited for the purpose of a hospital, with more commodious quarters, was secured.

The hospital was moved on November 11, 1918, the first truck leaving at 7.50 a. m., the last patient was transferred at 11 a. m., and dinner was served at 12.15 p. m. the same day in the new location. The hospital is a two-story wooden structure. On the lower floor are located dispensary, main offices, operating room with cement floor, sterilizing and instrument room, dressing room, large 24-bed ward, dining pavilion, small storeroom. On the upper floor of the main building are two rooms for officers, bath and toilet, small ward holding five beds, library and recreation room, laboratory, linen and drug storeroom; a large balcony extending around the front and one side of the building. In the large closed yard are located sepa-

rate shower baths for hospital corps and patients, pantry and special diet kitchen, general kitchen, separate toilets for hospital corps, infectious cases, general patients, and constabulary. The entire hospital is screened. A commodious pavilion has been erected for hospital corps quarters, and when necessary has been used as an additional ward for patients, with two separate rooms for officers. This pavilion has one large room and two small rooms, and is completely screened. Two storerooms, one for commissary stores, the other for bulk medical stores, are located in the inclosure. In addition a large tent ward capable of holding 10 beds has been erected for the use of the constabulary. A small vegetable garden has been started and will supply the hospital with part of the fresh vegetables consumed, good vegetables being articles very hard to obtain in the local markets. A cement floor has been laid for a garage and space reserved to erect a storeroom to hold tents to be used in case of emergency. Two hospital tents are erected for care of infectious diseases.

During the past year there were admitted to the hospital for diseases 208 cases; readmitted, 285 cases; remaining from last year, 22 cases. Using the average complement of the regiment as 770, the daily ineffective rate per thousand treated in the hospital was 32.9. For the same period from all marine barracks on account of diseases there were remaining from last year 18; admitted, 737; readmitted, 90. Venereal disease caused 46 admissions to the hospital, with 826 sick days, or 9 per cent of admissions and 10 per cent of total number of sick days.

Influenza occurred in all the posts, except Sanchez, at which place to date no cases have been reported. This is believed to have been due to the rigid quarantine of the Province, as but two roads enter this province, and these are closely guarded. The epidemic of influenza in the northern Provinces originated in Haiti and crossed the border line into Monte Cristi Province in the middle of November, 1918. The first cases reported in Santiago, Dominican Republic, were December 2, 1918. The first cases were benign in form and aroused a great deal of skepticism and opposition to the house quarantine by the native physicians and population. The cases were diagnosed as ordinary catarrhal grippe, which is prevalent during the winter season in this locality. A quarantine was declared between the Province of Santiago and neighboring Provinces from December 5, 1918. Every effort was made to guard all the trails and means of communications, but occasionally by some unused trail a few natives would enter and reintroduce the infection. A vigorous campaign of education was started as soon as any cases were diagnosed as influenza. Articles describing the disease, method of propagation, prevention, and treatment were published in the newspapers and pamphlets distributed.

All houses having cases were quarantined and measures taken to feed inmates. Schools were closed and all public gatherings prohibited; masks were not made compulsory but were recommended for constant wear in the street. The contagion in spite of all efforts was known to be spreading among the native population, although the doctors failed to report new cases, claiming other diagnoses. An explosive outburst of the epidemic followed Christmas Eve, when large family reunions took place against repeated advice and warn-

ings and due to introduction by a train crew from Puerto Plata which broke quarantine regulations. On December 26, 1918, over 600 cases had been reported, and by the end of the month approximately 5,000 cases were known to be present in the city. Among the marines the first case admitted was on December 9, an officer who contracted the contagion in Puerto Plata. He was promptly quarantined in his house and infection checked from this source. On December 11 the mail orderly who rode on the train with this officer from Puerto Plata was admitted. This man was quartered in the Twenty-seventh Company barracks and upon his return from trip of December 12, feeling ill, failed to report to the sick bay, thinking he had an ordinary cold. A common drinking cup was used at that time for the scuttle butt, and on December 13, 15 cases reported from this company. The epidemic then spread throughout the command in Santiago. The heaviest incidence came from the rifle range, from which 119 cases were admitted. It is believed the firing platforms were infected early from native labor, as it was reported to the medical officer that one of the laborers had had the characteristic symptoms of influenza while working on the range. This report was made after the native had been discharged. Men subsequently firing over the course promptly became infected. The incubation period for the disease was determined to vary between 45 and 52 hours after exposure. When the epidemic first appeared in the marine barracks there were but six hospital corpsmen attached to the hospital, and these had been doing day and night watches over a case of gangrenous appendicitis. Six privates were detailed as assistants on this date.

By December 18 three of the hospital corpsmen and some of the attendants had been admitted with influenza while the number of patients had doubled. Seven additional privates were detailed as assistants. On December 29 the highest number of patients in the hospital was reached, 141, or nearly four times the rated capacity. On December 31, 1918, the first death occurred. About 12 per cent of the cases developed broncho-pneumonia. Among the marines and naval detachment 192 cases, and 23 in the constabulary had taken place by this date. Masks were found to be of no preventive importance. The sanitary reports from all stations show presence of influenza although not to as great a degree as has prevailed in Santiago, Puerto Plata, and Monte Christi. It has been definitely shown by this epidemic that the negro and races having a proportion of negro blood show a higher resistance to influenza than the white race. The statistics of the epidemic of influenza in Santiago show that up to January 31, 1919, there were 10,189 cases in the city with 178 deaths.

The native population shows a very marked increase in the number of births over deaths. During the first six months of 1918 for the commune of Santiago 332 deaths took place, 2 in persons more than 100 years of age, while in the same period 1,290 births were registered, of which 782 were illegitimate. In the last six months 385 deaths took place, 4 of which occurred in persons more than 100 years of age. During the same period 1,868 births took place of which 1,147 were illegitimate.

On May 9, 1918, a King ambulance was assigned to this regiment. This has proved most unsatisfactory. It has continually broken

down and is so heavy that it sinks in the mud which is prevalent at most seasons of the year. It has been possible to utilize this ambulance for only 1,670 miles since it was received. It is recommended that the light Ford ambulance be supplied as this is the only car that has been found practicable on the very poor roads of this section. Replacement parts would be easy to obtain if necessary and the cost of operation would be reduced to a fraction of that of the present ambulance.

*Sixth Regiment, United States Marine Corps.*—During January the battalions and companies which had been scattered in various towns in France joined the Second Division in a training area near Bourmont, Vosges, France, and on February 11 the regiment was completed by the arrival from the United States of the Second Battalion. Here the regiment, united for the first time since September, 1917, began intensive training in preparation for a tour of duty in the trenches. On March 14 the regiment entrained for a quiet sector south of Verdun. During the two months' stay the battalions alternated in the front line, and casualties were not large. A great many plans were worked out which proved of service later. On May 12 the regiment proceeded to a new area near Vitry-le-François for a week and then to another area about 40 miles north of Paris.

On May 31, after having been out of the Verdun trenches for only 18 days, the regiment hurriedly entrained on motor trucks and after a ride of approximately 75 miles arrived near the now famous town of Bouresche and the Bois de Belleau, where the entire regiment was rushed in among the retreating French soldiers and fleeing civilians to help stop the headlong German advance on Paris. During the first two weeks of a six weeks' stay in this locality came the heaviest casualties, and the care and evacuation of the wounded became an enormous problem. After a total of 10 days "en repos" the regiment was again suddenly entrained and rushed northward to a point near Vierzy, south of Soissons, to participate in the great allied counter-offensive starting July 18. After sustaining casualties approximating 50 per cent on the 19th, the regiment was relieved to rest, refit, and replace losses. After several movements the regiment entered a quiet trench sector at Pont-à-Mousson, north of Nancy, for nine days.

About the middle of August the regiment entered a new training area about 15 miles south of Toul and except for interbattalion movements remained in place. It was here that for the first time opportunity presented itself to attempt to bring uncompleted clerical work up to date. However, comparatively little was accomplished. On September 2 the regiment started to march by easy stages to the front, 15 miles north of Toul. On September 12 the regiment advanced with the general attack which resulted in the closing off of the St. Mihiel salient. After four days the unit was relieved and proceeded gradually to rest billets near Toul, and stayed six days. From this point it proceeded by rail to the Champagne region near Châlons-sur-Marne.

After various moves the regiment attacked on October 3, advancing about 3 miles and taking Blanc Mont Ridge, a strategic point for the surrounding country. After making small further advances and holding this point until the line was consolidated on either side came relief and six days in billets near Châlons-sur-Marne. On

October 20 moving began again, not to stop for nearly two months. After several tactical moves in the Champagne, the regiment started across the Argonne Forest to join the American First Army, which had been fighting along the Meuse River north of Verdun. On November 1 the regiment again attacked, advancing about 6 miles the first day against determined resistance, and making further advances to the Meuse River near Mouzon, until the cessation of hostilities on November 11. On November 17 the march to the occupation of the Coblenz bridgehead was started, and the Rhine was reached on December 9.

**Personnel:** The medical personnel of this regiment has changed greatly during the past year. Of the original 8 medical officers, 2 dental surgeons, 1 pharmacist, and 50 hospital corpsmen at the beginning of 1918, there are still attached on December 31, 1918, 1 medical officer and 16 hospital corpsmen now doing duty with the regiment. Twenty-four different Navy medical officers and dental officers and 165 hospital corpsmen have been carried on the rolls of the medical department during the year. Of the officers that have left the regiment several have returned to a naval status, or are still in base hospitals or on duty in the Service of Supply after having been evacuated on account of wounds or sickness. Three officers are now on duty with the division sanitary train. One dental surgeon and four hospital corpsmen have been killed in action, 5 officers and 53 hospital corpsmen have been evacuated, wounded, or gassed.

The regimental medical detachment has been fortunate at all times in having an abundance of well-trained, willing, and courageous hospital corpsmen, and to them belongs the greatest share of the credit in giving first aid to the wounded in the most advanced positions. Sixty-nine citations for bravery in action have been given members of the hospital corps of this regiment and over half of them have been made by line officers. There have been a number of distinguished service crosses and *croix de guerre* awarded. Many have been mentioned in divisional orders and many citations have not as yet been heard from.

The naval hospital corpsmen serving with marines and the Army in the American Expeditionary Forces were at a disadvantage in the question of pay. They did not receive the 20 per cent increase for foreign service which both the Army and Marine Corps received. When transferred or evacuated to a hospital or an Army unit they could not receive their pay until transfer pay accounts were in the hands of some marine paymaster, who often had to make a special trip to pay them. Army enlisted personnel have service records which contain their pay accounts, and these go with the man or are sent after him when he is transferred or evacuated and any Army disbursing officer may pay them. Fortunately the marine paymasters paid many hospital corpsmen \$10 to \$20 a month until their transfer pay accounts were received.

**Casualties and sickness:** All infantry organizations in modern warfare suffer constant changes in personnel, and the Sixth Regiment was no exception to the rule. Approximately 2,000 officers and men of the regiment were evacuated on account of sickness, 593 were killed in action, 4,345 wounded, 239 missing in action, and 19 taken prisoners. Some 205 officers and men have been reported as having

died of wounds or from the effects of gas while patients in hospitals in the rear. The reports of those dying in hospitals are known to be very incomplete.

The chief causes of evacuation of patients on account of sickness were respiratory diseases and diarrhea.

The regiment's battle casualties, although often severe, were never out of proportion to the tactical advantages gained. According to the best available records, the casualties according to engagements are as follows:

Engagements.	Dates.	Officers.	Men.
Toulon Sector, Verdun .....	Mar. 15 to May 12 .....	12	350
Château-Thierry .....	June 1 to July 7 .....	46	1,782
Soissons, Verry .....	July 18 to July 20 .....	51	1,213
St. Mihiel, Thiaucourt .....	Sept. 12 to 16 .....	12	381
Champagne, Blanc Mont .....	Oct. 2 to 10 .....	28	788
Meuse-Argonne .....	Nov. 1 to 11 .....	23	487
Total, exclusive of missing and prisoners .....		172	4,971

At Verdun about 300 out of the total casualties known were due to enemy poison gas. On April 18, during the early morning hours some of the rest camps near the front line were bombarded. One of the camps in a hollow about 2 miles from the front line was bombarded for four hours with yellow and blue-cross gas shells and high explosives, approximately about 1,000 shells being thrown in all. About 300 men were billeted here in wooded shacks. The onset of the attack was at about 4 o'clock in the morning, and so it caught most of the men asleep. Practically all of these men were evacuated during the day on account of the effects of the gas. Thirty-three deaths occurred among these men. The cause of most of the deaths was a secondary pneumonia. The great majority of the men who lived have not returned to the regiment, as they have not been physically fit to perform heavy duty. According to the regimental gas officer at that time the causes of the casualties were: Shell bursting in a shack, 60 cases; respirators not put on in time, 25; premature removal of respirators, 75; disobedience of orders, 75; insufficient clothing for change, 60.

During the actions about the Bois de Belleau (Château-Thierry) there was much gas thrown by the enemy; however, as a rule the casualties were light on account of our added experience. On the nights of the 13th and 14th of June a large area was gassed for about four hours with what was apparently chiefly mustard gas with some phosgene added. Approximately 600 gassed cases were evacuated through the aid stations of the regiment on the 14th, but only about 250 were our own men. Most of the cases were gassed while lying in close support of the front line in the woods or in the small ravine that ran along the back of the woods.

The enormous casualties at Soissons practically all occurred in 18 hours on the 19th of July. On account of the almost complete lack of evacuation facilities for the wounded the aid stations were rapidly congested, and soon presented a condition that anyone who ever saw it will remember as a nightmare. The regimental aid station was in a large cave and there, for most of the day, several hun-

dred wounded lay without morphine, proper bandages, water, or any comfort. Principally on account of the roads being so crowded and the primary necessity of bringing up guns and ammunition, ambulances did not run during the day. During the afternoon returning ammunition trucks took most of the seriously wounded, placing them on a layer of straw over the bottom of the truck. Under cover of darkness ambulances came forward and evacuated the aid stations.

During our part of the Argonne-Meuse attack a severe epidemic of diarrhea developed in the regiment. Practically the whole command was affected and several hundred men were evacuated to the rear. The supposed cause was bad water, but sleeping in wet clothing on wet ground aggravated the symptoms. Most of the cases returned to duty in three to five days. The disease was characterized by frequent watery, often bloody stools, malaise, prostration, and anorexia. Nausea, vomiting, and low fever were present in a few cases.

Venereal disease has not been a large factor in this regiment since its arrival at the front in the spring. The chief reason for this has no doubt been the lack of opportunities for exposure. Practically all new cases come from men returning to the regiment from base hospitals in the rear, returned from leave, or from detached duty in the Service of Supply. Every opportunity was offered to the men to avail themselves of the benefits of prophylaxis. Nearly every village or town in which our troops were quartered had a well marked prophylaxis station which was available for use at all times. Talks were given to the men of this regiment by the medical officers at regular intervals. Venereal inspections were held twice a month.

Food, water and kitchens: Under the varying conditions encountered on the different fronts and in the rear food naturally varied much as to quality and quantity. As a rule, when in rest or reserve the food was good. However, at the front, especially in our early days near Verdun and in the Bois de Belleau, food was occasionally scarce and on a few occasions very bad. As the line of communication developed experience was acquired in preparing and handling food at the front, and conditions grew much better. While serving with the French during May and June the regiment drew its rations minus the red wine. Since then the American ration, which is well balanced and satisfying, has been served.

It has been noticed by everyone who has been close to the front that often when large cans of meat from the reserve rations were opened only about one man's share was eaten out of the can and the rest left to spoil. Canned meats for the reserve ration should be separately put up, with just enough in one can for one man's meal. The can should be flat, similar to an ordinary sardine can, so that it will fit well in the pack.

While in the rear it was often possible to treat the water with calcium hypochlorite or to boil it, but during an action, or even while on an active front, it is impossible to use Lister bags, and usually, of necessity, any water available was drunk by the men.

The "Magocar" and the "Steinburn" rolling kitchens were used by this regiment. The kitchens that can hold the fire in the firebox while on the move are the best. When the command is moving from place to place with such a kitchen the men can be supplied at



noon with hot coffee, and the evening meal may be started during the afternoon so that on their arrival at their destination they will not, as a rule, have to wait any longer than an hour for their supper.

**Clothing and equipment:** No Marine Corps clothing was issued to this regiment since the training area was left. When the existing Marine Corps issue had been rendered unserviceable Army clothing was substituted. The campaign hat was discarded in this regiment during March, and since that time the overseas cap and the steel helmet were worn. There has been much discussion as to the suitability of this type of cap. The chief point in its favor for use at the front in France was that it is small and easily carried in the pocket or pack or may be worn beneath the steel helmet. This was, no doubt, a great advantage at the front, as a larger hat or cap would be lost or thrown away on the first day of the attack. Its chief disadvantages were encountered on either very sunny or warm days or on rainy days. When the sun shines there is absolutely no protection afforded the eyes by the cap. This was obviated by making a paper visor or putting a paper between the cap and the forehead, so as to shade the eyes. When it rains one is equally unprotected; the rain beats directly into one's face and eyes and the cap rapidly becomes like a wet rag over the head. A soft cap with a visor, similar to that worn by the Canadians, is much superior to the overseas cap in the opinion of many.

The Marine Corps overcoat is heavier, longer, and better made than the Army overcoat, but not so suited to active service. The length of the marine overcoat was a distinct disadvantage in most trench sectors. It is so long that it interferes with active movement and the lower foot or so of the coat became rapidly saturated with mud and water. The coat then gained many pounds in weight and it was almost impossible to clean or dry the coat while in the line. The shorter Army coat was more suited for that kind of work.

A so-called "trench coat" worn by almost all of the officers is worthy of mention on account of its many good qualities. It is a lined raincoat cut in the loose "Raglan" style, gathered at the waist by a cloth belt and extending usually to the knee or a point just below. The outer layer is of a smooth, tough material, which does not easily tear and is easily cleaned by scrubbing with soap and water. Between the outer layer and the thin inner lining of the coat proper is a layer of oiled silk. A detachable lining of a thick woolly material may be buttoned on the inside of the coat, thus adding great warmth to the rain-proof qualities of the garment. The chief advantages of this coat are that it is readily rain proof, comfortable, easily cleaned, and may be made into the warmest of overcoats by buttoning in the detachable lining. This type of coat was worn by officers under all sorts of weather conditions, and it appears to be the best coat yet devised for use in the field.

The question of footwear has been a very important one. When a man dropped out on a march it was usually due to ill-fitting and wornout shoes. The United States Army field shoe is the best all-around shoe for everything except looks. The Marine Corps hobnail shoe and the British field shoe are, in the opinion of many, inferior. The marine hobnailed shoe has a lining which wears through and then causes irritation of the foot at that point. The British shoe is too stiff and is not fitted properly around the heel.

Wrap puttees were used almost exclusively since February. On the whole, they were satisfactory. Their points of advantage are comfort, warmth, softness, and usually neat appearance. Mud can not work up between the puttee and the leg as in canvas or leather puttees. The disadvantages of the wrap puttee show themselves especially when wrapped too tight, as was often done, especially about the calf of the leg. This shuts off healthy circulation and the legs become tired more easily and in cold weather the feet chill more easily, and thus the men are more predisposed to frozen feet and possibly to trench foot. When the wrap puttee is exposed to water and mud it readily becomes saturated through, thus tending to constrict the leg more, and as the puttee dries it becomes as stiff and uncomfortable as a plaster cast on the leg.

Medical and surgical supplies.—Each of the battalions brought over a complete standard Navy "regimental medical and surgical expeditionary outfit." The quality and selection of both drugs and instruments was excellent, and while in the training area the best of the material used was from these outfits. However, when the regiment left for the trenches in March transportation was limited and only parts of the outfits could be carried by the battalions. What could not be taken or did not seem necessary was stored in the training area and was later taken over by the Army. The medical material not taken along was in most part soon expended, lost in action, or turned over to Army hospitals or supply depots and all further supplies were drawn from Army sources.

The transportation question with an active infantry regiment is a great one for all concerned. During April a small two-wheeled mule-drawn cart was issued for each battalion and finally all supplies were carried on these carts. However, while the supplies carried on these carts were of great value in the rear, when going into action everything from the carts that was intended to be used had to be carried in on the backs of the hospital corpsmen. In explanation of the small amount of supplies of drugs and instruments found to be actually needed it must be said that at the front all wounded, gassed, or sick, except the slightest cases, were evacuated to a field hospital as soon as possible, while in the rear there were rarely facilities for the care of bed patients, and all except the slightly sick were evacuated to field hospitals daily. The chief work in the regiment consisted in diagnosing cases, caring for the slightly sick, supervising and organizing the care and evacuation of the wounded from the battle field during action. While on the line, stretchers, splints, bandages, and morphine were carried in by stretcher bearers and hospital corpsmen. These supplies usually did not last more than a few days and replenishments were brought up by ambulances coming from the ambulance heads and from there to the line by returning litter bearers.

As a means of carrying first-aid material the Navy hospital corps first-aid and dressing pouches proved a blessing and are much superior to the Army hospital corps belts. The reason for this is that Navy pouches hold more, are just as easy to carry, may be taken off without removing the pack, and contents are more accessible.

The Thomas leg splint when it was available was a godsend to put on a fractured thigh or leg in the line. The patient's relief was

pronounced. Of all the types the large straight-leg splint was the one mainly used. The arm splints were not practical at the front because, with one of them on, it was difficult to carry the patient on a stretcher and usually impossible to load him on an ambulance. The Thomas leg splint can usually be put on in the front aid stations and always at the regimental aid stations or regimental head. The chief advantages of this splint are that it immobilizes the limb and at the same time allows the application of traction and by drawing apart the ends of the injured bone prevents laceration of the surrounding tissues and the accompanying shock is obviated.

Greely units of morphine supplied through the American Express were the only practical, and often the only possible, means of getting morphine at the front.

United States Army litter was almost universally used at the front.

The French have a litter of the same type with the addition of a contrivance for a raised headrest. It is generally thought that the Army Stokes splint stretcher would have great advantages for use at the front, but it is not practical to have two stretchers of entirely different types at the front. As the stretcher goes to the front with the patient and he is not usually changed from one stretcher to another, because this is of necessity often an awkward process, it delays his evacuation to a safer spot and in the more serious cases will further endanger his life. Thus a wounded man may be left up on the field, placed on a stretcher and remain on it until he is removed to a base hospital far in the rear, one or two days later. The regimental medical unit had to do the paper work of over a hundred men with no typewriter. For use in the field a small fold-up typewriter could be transported easily and would prove of the greatest assistance in getting out reports, forms, and memorandums. During the last months before the signing of the armistice, the fighting was engaged in by this regiment assumed more and more the character of open warfare. The front line usually advanced from day to day sometimes as far as 10 kilometers. These movements necessitated frequent change in location of aid stations and routes of evacuation, thus greatly increasing the difficulties and dangers in the care and evacuation of the wounded. From a medical standpoint the planned and well-carried out engagements of St. Mihiel, Champagne, and the Argonne-Meuse are more typical of what may be done in the earlier and more heroic battles near Château-Thierry and Meuse where in which the regiment also participated.

The authorized personnel consisted of 7 medical officers, 3 dental officers and 48 hospital corpsmen. During the last three engagements the regiment had an average of 7 medical officers, 1 dental surgeon, 30 hospital corpsmen and 156 litter bearers, the latter being permanently assigned and trained for their duties as litter bearers at the front. The personnel usually was distributed as fol-

Regimental aid station and regimental headquarters.

Regimental surgeon.

Assistant regimental surgeon (none after Sept. 23, '18).

Dental surgeon.

Chief pharmacist's mate.

Hospital corpsmen (6 or 8).

**Battalion aid stations.**

Two medical officers.

Chief pharmacist's mate.

Hospital corpsmen (5 to 7).

**Each company.**

Hospital corpsmen (2 to 4).

Litter bearers (12).

The ambulance company personnel varied in numbers and location, but there were always at least one Army medical officer and about 60 litter bearers attached to the regiment during action, taking over most of the evacuations from the battalion aid stations. Necessary ambulances were provided and came up to, or as near to, the battalion aid stations as possible.

When a man was severely wounded in the line one of the hospital corpsmen detailed with his company proceeded to him at once, if possible, or litter bearers brought the man back to the hospital corpsman. If it was impossible to move the man, his rifle was stuck into the ground alongside of him by the fixed bayonet.

If the wounded man could walk or crawl he usually started out to the nearest hospital corpsman. The individual first-aid packet might or might not have been applied by the man himself or one of his comrades. At all events the hospital corpsman assured himself that the man had on a satisfactory dressing, always, if possible, gave the patient an injection of morphine, and wrote out and attached a diagnosis tag to his clothing and was occasionally able to apply a rough splint to a fractured bone. From this point the patient went back to the battalion aid station, usually by routes marked with strips of bandages on bushes or sticks. If he could walk he went back alone or was helped by a litter bearer, otherwise he was carried back by four litter bearers. The battalion aid stations were located as close to the front line as possible, the distance usually varying between one-half and 2 kilometers back, according to circumstances. On arrival at the aid station the medical officer, or chief pharmacist's mate examined the man and the dressing, did whatever was possible under the circumstances, as improving the dressing, applying a Thomas splint, removing or applying a tourniquet. In other words, he brought the patient into the best possible position and condition to travel to the rear. Occasionally it was possible to give the patients hot coffee here. From the battalion aid stations the patients usually walked or were littered to the rear in charge of litter bearers from the ambulance companies. If ambulances could come to the battalion aid stations the patients usually went through from there direct to the field hospital, sometimes, if necessary, stopping at the regimental aid station or ambulance dressing station if they had been established.

Antitetanus serum was usually given at the regimental aid station, ambulance dressing station, or field hospital, although sometimes it was given at the battalion aid stations if circumstances permitted and it was necessary to keep the patient therefor some time.

The selection of an aid station was an important matter and there were many points to be taken into consideration regarding location. Conditions vary so much in various places that no set rules can be laid down and an ideal place is never found. In the various engagements aid stations were established in houses, cellars, dugouts,

shacks, culverts, ravines, ditches, and even in the open. The important considerations are as follows:

Proximity to the battalion being taken care of—ideally between flanks of the battalion as it is in position.

Access to roads or paths by which evacuation may be further continued. A road along which ambulances can come is ideal.

An aid station itself should be large enough to work in; where a light is burned at night without being seen, and where available protection may be utilized. A bombproof dugout with wide steps, down which patients may be carried easily, room enough below to work and keep a supply of stretchers and sitting patients awaiting evacuation, is ideal. The aid station during the Champagne attack was in such a place, having several sized rooms in addition to passages having 60 bunks. It had been used by the Germans and was used by them as an underground aid station at their arrival.

Locations to be avoided if possible in the selection of an aid station: Close proximity to crossroads; active battery or machine gun displacements; ammunition dumps; battalion or regimental headquarters or, where direct observation of the station is possible, or large deep hollows or ravines which can be shelled with gas.

In making an advance the question of moving the aid station forward becomes a problem. It was found that a good station once established should not be abandoned in an advance. As a rule medical units of following units took over the next aid station ahead, relieving the medical personnel left there to go on ahead with their own units. When moving an aid station forward into new territory it was a waste of time and added needless danger for the doctors and medical personnel of their aid-station to move forward together to establish an aid station. The best way was to have a doctor or a pharmacist's mate with one other hospital corpsman, and to go forward, possibly with the battalion commander; and, when a halt was made, or numerous casualties began to occur, to enter the ground, and establish an aid station, and at the same time send back the runner to bring up the doctor and hospital corpsman and litter bearers with the supplies, splints, etc. In this way the aid station was always in full operation, and the main part of the medical personnel and supplies were not out wandering over the ground, but when they moved they went forward rapidly and directly to their finite place.

A battalion aid station should have its exact location known to the commander but the enemy. Good battalion aid stations have been established and received no patients because the battalion and company commanders did not know their location. Other stations have accepted dozens of litter patients and many more sitting patients have stayed there for hours on account of poor liaison with the medical units. To improve liaison with other units the following were usually taken in this regiment: A consultation of all the medical officers in the regiment was held before the attack, the plan of attack was discussed, coordinated maps of the area on a large scale were given to each battalion medical officer, and the terrain which the attack was to proceed was studied from the map. When a battalion medical officer located a new aid station he sent the coordinates of his new station to this battalion commander and a runner to the regimental surgeon or ambulance head so that the ambulances might be directed to the station and litter bearers, ambulances, and supplies brought up.

Naval reports in the field—clerical work: Since first entering the trenches in March little was done toward completing naval records. The regiment expected to spend only about a month in the line and then to return to training area, so that all health records, desks, etc., were left stored and there were carried up to the front one typewriter, a field desk, blank forms, and loose leaves from health records. The plan was to keep records in the rough journal and on the loose leaves. However, the regiment never returned to training area, and it was not until August that an opportunity presented itself to get the health records and attempt to catch up on the back work. From March until the end of July there were approximately 3,423 casualties, 1,000 evacuated sick or transferred, and several thousand replacements, most of the latter not having their health records. When the regiment remained two weeks in one place an effort was made to bring health records, Form F, smooth and rough, K, K2, and N, up to date. Form K2, for the action in the months of March, April, and May, were completed in so far as was possible and were sent to the bureau. However, as the work progressed it was soon realized that all of the back work could not be completed under existing conditions even if all of the health records had been available. During an engagement there were over 1,200 casualties in one day. At all times during action it was not even possible to write out a diagnosis tag for the wounded. The care of the dead was not a part of the medical officer's duties. In this way usually at the end of an engagement the carbon copy of the diagnosis tag for the wounded and usually a list of those buried by the chaplain or others was available. Little or no information about any man evacuated to a hospital was ever received by the regiment, and it was practically impossible to trace the progress of a man from one hospital to another, where he might finally die or from which he might be sent back to the United States or be put on some duty in the Service of Supplies.

On account of the above conditions it was impossible to complete an "F" card because the information required under Nos. 2 and 3 was not available on account of not having the man's health record or service record at hand. The sick days could not be estimated except as under a "T" disposition and no sick days. Health records were transferred with patients for a short time but they were often lost or returned without entries from the Army hospitals. So when it was impracticable to transfer a man's health record with him on transfer to an Army hospital, if his health record was available, he was admitted and data entered and then the record left open. If he returned from the Army hospital, additional data were added, the man was discharged, and sick days computed. An "F" rough could then be completed. However, only on rare occasions was this procedure carried out, and there were no health records available to make the proper entries or else the patient did not come back to the regiment.

When a start was made to move up to the front again for participation in the St. Mihiel offensive great difficulty was experienced in transporting the accumulated records, and it was impossible to set up an office and accomplish anything in a short halt.

Even if the regiment had had all of the health records of the men in the regiment or who had been in it, it would have been impossible to bring all of the back work up to date in a reasonable time. While

iment moved about from place to place and while in the line efforts were made to have a more or less permanent office established near the chief surgeon's office in Tours, France. This promedical records office never materialized, but during the last engagements participated in a small brigade medical records was established consisting of two hospital corpsmen each from Fifth and Sixth Regiments and one from the Sixth Machine Battalion. This office was a great help when data could be taken back to it. Within a few days after return to the rear Forms and the action were completed.

Returning on the Rhine on December 9, 1918, the medical officers immediately established a regimental office and started in again to get up on back work. Unfortunately all cases transferred went to various hospitals, and their sick days could not be entered. In addition for writing up the health records and making Form 10, A, B, N, and other required forms, health records known to be correct were sent for and casualty lists were gone over carefully and re-indexed alphabetically. Forms F and K for the months of March, April, and May were completed and sent in. At this time by an order from the commanding general of the Fourth Army, all of the health records, card-index, and casualty lists, typewritten, and two hospital corpsmen were sent to the brigade medical records office.

*Fourth Regiment, United States Marine Corps, San Juan, Santiago de Cuba.*—During the past year three forms of disease were prominent in causing damage to personnel—influenza, malaria, and venereal infection. Influenza occurred in epidemic form during the months of October and November. No camps escaped. Two were more heavily infected than the others. Malaria has been noted in all forms, benign tertian and the pernicious aestivo-autumnal type. The former did not appear in epidemic prevalence at any time, but cases have been noted in the personnel of all camps from the beginning of the year to the present. The pernicious type was noticed in the camp at San Juan and occurred during February and March of the past year. Symptomatic treatment was required to bring the disease under control. Venereal deaths occurred. Quinine was given by the intravenous method.

Practically all cases that were infected and recovered from immediate attack were later surveyed and returned to the United States, as their general physical condition was such that they were fit for further duty in the field. Venereal disease varied from mild to severe. Wherever it was possible to cooperate with the medical sanitary department in regard to its control this course was followed, but in the majority of instances very little could be accomplished in this way. Venereal prophylaxis has proved the best and most direct way of keeping it at a minimum. Gonococcus infections and chancroids have been the most frequent forms observed.

*Fifth Regiment, United States Marine Corps.*—The total strength of the command is 62 officers and 999 men, a total of 1,071, the hospital corps being included in these figures. The percentage of sick has been 0.87 per cent and but one death has occurred, the case of Corporal L. H. Swanson, United States Marine Corps, deceased, who died at sea en route to this port of acute nephritis following an attack of influenza, his remains being forwarded to his home upon the arrival of the transport.

The general health of the command has been very good. This is especially true when the constantly changing personnel, tropical duty transportation at sea upon a badly overcrowded transport, the large number of recruits, and the general prevalence of influenza are duly considered, the great majority of disabilities being due to diseases of the respiratory tract and injuries. Under the former belong influenza (happily very light in character and affecting relatively few cases), tonsillitis, coryzas, etc. The greatest number of influenza cases was directly traceable to exposure to infection on board the U. S. S. *Hancock*, a total of 15 cases being directly attributed thereto. This ship had but recently returned from France where she had transported two colored labor regiments, influenza being very prevalent among them. Then without fumigation, etc. 1,850 marines were taken on board which, added to her crew of 35, produced a most deplorable condition of overcrowding and at the time of our embarking at Guantanamo Bay, there were over 100 on her sick list, nearly all due to influenza alone. The number of infections among the personnel of this command may be considered surprisingly low, in view of the foregoing. The passage required five days at sea and upon arriving at this port, camp was made at the Fort Crockett Military Reservation, near the camp site of the Eighth Regiment, already here, with which organization this command was brigaded.

During the month of October, 1918, the prevalence of influenza at and about Galveston had reached such alarming proportions that upon the 9th, the medical officer planned to prevent the spread of the epidemic throughout this command by the following steps:

1. Spraying noses and throats of everyone twice daily with a 10 per cent solution of silvol.
2. Flooring of tents, etc., to be sprinkled with a 2 per cent solution of cresol daily.
3. All suspects to be sent to sick quarters promptly.
4. Restriction of liberty.
5. Sterilization of mess gear and avoidance of all crowding.
6. Airing of tents and bedding.
7. Limiting occupants to two inmates.
8. Strict observance of all general sanitary measures.

Literature and posters relative to influenza as published by the department and notices explaining the mode of transmission of the disease were conspicuously posted throughout the camp, lectures being given to all officers and men upon this subject and the dangers of promiscuous spitting, sneezing, "droplet infection," etc. It is a source of gratification to be able to state that but seven cases in all developed among the personnel during this high tide of local incidence due in great part to the foregoing in conjunction with the hearty and intelligent cooperation of all in authority, the measures taken apparently having proved their efficacy. No new cases developed subsequent to their application during this period and it has been proved to the entire satisfaction of the medical officers that the vigorous and systematic use of the nasal and throat sprays has a prophylactic value in the control of this epidemic. It may be further stated that the location of the camp, directly on the beach within a few feet of the water doubtless helped, inasmuch as the prevailing breezes were from the south and east, thus supplying the camp site with practically pure air, first hand so to speak.



real disease: The venereal situation on the whole has been satisfactory, a total of 96 admissions for all, occurring as follows: syphilis, 14; chancroids, 32; gonorrhea, 50.

General arrangement of the field hospital located on Deer Key, Guantanamo Bay, Cuba, was described in the sanitary report of 1917, and aside from screening the wards, installation of a dental office, screening and otherwise protecting the surgery, etc., remained practically the same as previously described. On the arrival at this city, temporary sick quarters were erected, in all respects to those in use in Cuba, until the new sick bay building could be erected and made ready for use.

The sick bay proper is built of wood and covered with "ship lap," and with a hard pine floor, roof of tar paper, interior lined with white board." Hot and cold running water installation, lighting, electricity and heating by oil stoves has been provided, the mild climate permitting this latter step, which to date has proved wholly satisfactory. The operating room is floored with linoleum in blue and white design, while the walls, ceiling, etc., are all done in white.

The sterilizer is heated by an electric stove, supplied by the quartermaster's department. The rest of the building is furnished with light green overhead and sides, with buff-colored wainscot, the work being stained. The bathroom has a concrete deck and is painted in war color with white ceiling and upper walls. The building is screened and the windows are supplied with sash of white material donated by the ladies of the local chapter of the Red Cross. The ward has a capacity of 12 beds.

Venereal service is in a hospital tent, fitted with running water, sinks, drains, etc., and partitioned through the center, one side for prophylactic administrations, the other for genito-urinary treatments, etc., and fitted with tables, lights, and other necessary equipment, so as to preclude the handling of such cases in the operating room proper.

*With Regiment United States Marine Corps.*—This regiment was sent as an overseas infantry regiment on September 10, 1918; it consisted of 126 officers, 3,662 men. After a short period of training a detachment of the regiment left the United States on September 19, 1918, for overseas duty with the American Expeditionary Force and arrived at Brest, France, on October 13, 1918.

Prior to the departure for overseas service each officer and man underwent a complete physical examination in order to determine fitness for overseas duty, special attention being paid to the condition of the feet and general physical condition. The teeth of all were examined and the feet were measured for shoes for both the Army last and the Marine Corps last. The results of these examinations were given to the post surgeon at the marine barracks, Quantico, Va., and were incorporated by him in a special report to the Surgeon General.

From the arrival of this regiment in France climatic conditions were most unfavorable. Almost daily rains, much cold, dampness, and mud were not conducive to the best of health, especially when the men were living under canvas or in Adrian barracks with no floor. Special attention was therefore paid to hygiene and sanitation, and in some cases twice daily, inspections were made and it was

only by the exercise of constant vigilance and the hearty cooperation of the company officers that sanitation was maintained at a high standard. The prevalence of diseases of the respiratory tract and of venereal diseases made it necessary to pay special attention to measures directed against these dangers. Ample air space or sufficient ventilation combined with shelter-halves between bunks and fires to combat the dampness were useful. The enforcement of General Order No. 77 G. H. Q., A. E. F., has been strictly adhered to and has resulted in keeping down the number of admissions for venereal diseases.

During the months of October, November, and December, 1918, admissions to the sick list for the entire regiment were as follows:

Influenza	11
Bronchitis	5
Mumps	5
Measles	1
Gonococcus infection of urethra	1
Chancroid	
Syphilis	
Gonococcus infection, unqualified	
Cerebro-spinal fever	
Dementia præcox	
Malaria	
Rheumatism	
Appendicitis	
Fractures	

There were four deaths, three caused by broncho-pneumonia complicating influenza, and one caused by epidemic cerebro-spinal fever. Three men were found unfit for active duty by an Army medical survey board, one a convalescent from broncho-pneumonia, one with dementia præcox, and one with nephritis.

*American Legation Guard, Peking.*—A striking reduction in the incidence of venereal disease as compared with that of the preceding year is reported. This is attributed by the medical officer to the large exodus of foreign prostitutes, chiefly Russian, following the reduction in strength of the various guards due to the war. Another factor is the high type of the men in our ranks and their holding aloof from the native women. The comparatively short term of enlistment—for the war only—encourages men to good behavior, as they wish to go home clean and healthy. On the other hand, the fact that there are several places in the city where a Wassermann test and 4 or 5 injections of salvarsan can be had for \$15 or \$20 may have led to some cases of syphilis being concealed.

#### MARINE BARRACKS.

*Parris Island, S. C.*—During the past year many changes have taken place at this station. A year ago there were barrack accommodations for approximately 5,500 men. In July, 1918, however, the personnel of the post totaled nearly 17,000 men. This large number was properly taken care of by quartering the men in tents.

From the standpoint of sanitation practically every recommendation made in the sanitary report a year ago and in the monthly reports has been carried out, or is in process of solution, except the installation of a fresh water system. This question is still under discussion and plans and estimates are being made by the public

officer. Each and every commanding officer has been very promoting any measure which would add to the health and of the personnel, and every measure which could be carried the station itself has been promptly put into operation. In it may be stated, that there has been no epidemic disease developed serious proportions except influenza. That other (meningitis, measles, etc.) have not become serious is attributable to quick action on the part of the medical officers and the and hearty cooperation of the post commanders.

*Philadelphia, Pa.*—Coincident with the subsidence of the influenza epidemic late in October, the surgeons of this post began to see an increasing number of cases of diarrhea. Since the of the men were able to continue on duty, and hence placed on the sick list, the exact number of patients who for treatment could not be determined. A conservative estimate would be 400 during the months of November and December in average personnel of 1,500 men stationed at the post. The was characterized by frequent watery stools without blood, usually accompanied by griping pain, and occasionally and vomiting. The cases were all afebrile and the amount of evacuation was not greater than the number of evacuations would

As has been said, most of the men continued on duty, but a large proportion were suffering so much pain and were so that admission to the hospital ward was necessary.

Without exception all the cases responded more or less quickly to the treatment of preliminary purgation followed by sedative and astringent medicines. The medical staff devoted considerable time to a study of the etiology of this epidemic. The drinking water was examined bacteriologically without result. The mess halls in the early part of the period of the outbreak fairly swarmed with flies, due to the premature removal of window screens and were made to abate this nuisance as a possible etiologic factor. In late in December was it found that a faucet marked for drinking purposes on the second deck of barracks No. 1 was supplying water from Delaware River water which is not potable. The use of water contaminated by the sewage of the cities of Philadelphia and Camden apparently explains the outbreak of diarrhea.

The sick bay contains 17 beds and is well equipped. During the epidemic of influenza it was necessary to take over the entire floor of barracks No. 1 in which the sick bay is located and the side of barracks No. 3. At that time there were 175 beds in use.

*Thomas, Virgin Islands.*—The quarters for the men at various posts are not overcrowded; each man is required to sleep under a mosquito net and he is held particularly responsible for the condition of his netting. This is most important, as there are many mosquitoes of the culex and stegomyia types as well as a few anopheles, and although there is no yellow fever or malaria in the enlisted personnel a large number of sick days resulted from dengue fever which is always and epidemic at times. It is a peculiar fact that the barracks seem to have the latter fever more frequently than the men in tents.

The mess halls and galleys are screened at all times and particular attention is paid to the number of flies, as they serve as an excellent indicator of the cleanliness of these buildings. No food is allowed to stand uncovered. All garbage is kept in tightly-covered galvanized cans and taken daily to a distant farm for disposal. The mess hall on Ma Folie is the only exception. This is not screened as yet, but fortunately it is on the crest of the mountain and due to the constant wind, there are few flies and no mosquitoes. Commissary store-rooms are all of very recent construction, well ventilated and dry. Flour, grits, rice, and cornmeal are all kept in either tight, well-lined bins or in galvanized iron cans with tight lids. A great quantity of flour infested with worms is saved by sifting.

The cisterns are of concrete, have been recently built, with the exception of the one on Ma Folie, and are screened and clean. The drinking water is filtered. At Ma Folie there is no filter, but one was requested sometime ago. Boiled milk only is used, as there is no real first-class dairy where cleanliness is a feature.

Dengue fever has been epidemic at times, but it is never a serious setback and always occurs when mosquitoes are most abundant. Everything is being done to rid the community of these pests, but on account of the necessity for cisterns it is a difficult proposition. An infectious itching dermatosis was for a time rather epidemic, but the early reporting, careful treatment, and care of the men's underwear soon had this in check. Although there have been many cases of influenza in town and several cases among the men of the ships visiting and coaling here, there has not been one case in the Marine personnel.

Considering that 90 per cent of the natives are held to have venereal disease we are rather fortunate in having a fairly low percentage in the enlisted personnel. All new cases of gonorrhea are transferred to the naval hospital, where they are treated in bed. At the barracks the rule has been recently instituted that no case of gonorrhea shall be taken off the restricted list until microscopical examinations of two successive smears prove negative, these smears being taken after sounding and prostatic massage.

#### NECROLOGY.

I have to record with sincere sorrow the loss to the service of the following-named medical officers who have died since my last report or whose names were not contained in the previous list. Some of these medical officers had served their country with faithfulness and distinction for many years, while others were just beginning careers of great promise.

Captain H. E. AMES, Medical Corps, U. S. N. (ret.).....	June 27, 1918.
Lieutenant (J. G.) O. W. BARNEY, Medical Corps, U. S. N.....	June 25, 1919.
Lieutenant B. E. BELCHER, Medical Corps, U. S. N.....	Oct. 20, 1918.
Captain H. G. BEYER, Medical Corps, U. S. N.....	Dec. 12, 1918.
Lieutenant H. B. BOGUE, Medical Corps, U. S. N.....	Jan. 9, 1919.
Lieutenant R. C. CHRISTIANSEN, Medical Corps, U. S. N.....	Oct. 18, 1918.
Lieutenant (T.) T. J. COURTNEY, Medical Corps, U. S. N.....	Dec. 27, 1918.
Lieutenant A. H. DRANE, Medical Corps, U. S. N.....	Apr. 2, 1919.
Captain S. G. EVANS, Medical Corps, U. S. N.....	Mar. 10, 1919.
Captain W. B. GROVE, Medical Corps, U. S. N.....	Jan. 21, 1919.
Lieutenant R. M. HAYES, Medical Corps, U. S. N.....	Oct. 3, 1918.

Commander F. P. W. HOUGH, Medical Corps, U. S. N. Oct. 30, 1918.  
 (T.) N. KING, Medical Corps, U. S. N. Oct. 23, 1918.  
 A. H. MCCRAY, Medical Corps, U. S. N. R. F. (inactive) June 14, 1919.  
 A. D. OBERLY, Medical Corps, U. S. N. (ret.) Feb. 15, 1919.  
 Assistant Surgeon F. W. OLCOTT, U. S. N. (ret.) Jan. 21, 1919.  
 A. F. PRICE, Medical Corps, U. S. N. (ret.) Mar. 22, 1919.  
 (J. G.) G. J. RAU, Medical Corps, U. S. N. Jan. 21, 1919.  
 Commander A. A. REHM, Dental Corps, U. S. N. Oct. 20, 1918.  
 G. R. ROBERTS, Medical Corps, U. S. N. Feb. 5, 1919.  
 (T.) R. H. SCOTT, Medical Corps, U. S. N. R. F. Oct. 15, 1918.  
 (T.) H. H. TETZEL, Medical Corps, U. S. N. R. F. Sept. 26, 1918.  
 W. A. VAN DEVEER, Medical Corps, U. S. N. R. F. Oct. 7, 1918.  
 (J. G.) (T.) T. B. WEAVER, Medical Corps, U. S. N. Nov. 21, 1918.  
 (J. G.) B. H. WILCOX, Medical Corps, U. S. N. R. F. June 3, 1919.  
 Commander C. C. WOOD, Medical Corps, U. S. N. Oct. 12, 1918.

### HONORS AND DISTINCTIONS.

#### MILITARY CITATIONS AND DECORATIONS<sup>1</sup>—OFFICERS.

A. A. Lieutenant (J. G.), Dental Corps, United States Navy, Sixth Regiment, United States Marine Corps.  
 for croix de guerre at Blanc Mont, Champagne offensive.  
 led croix de guerre with gold star.  
 T. Lieutenant Commander, Medical Corps, United States Navy, Fifth Regiment, United States Marine Corps.  
 for distinguished service cross at Thiaucourt, St. Mihiel offensive.  
 for medal of honor at Vierzy, Soissons offensive.  
 for croix de guerre, Soissons offensive.  
 led and decorated with croix de guerre with palm.  
 for distinguished service cross, Champagne offensive.  
 for croix de guerre, Champagne offensive.  
 led and decorated with croix de guerre with palm.  
 for distinguished service medal for summary of activities with Second Division.  
 named in General Order No. 44, Headquarters, Second Division.  
 named in General Order No. 88 (three times).  
 T. Lieutenant, Medical Corps, United States Navy, Fifth Regiment, United States Marine Corps.  
 named for croix de guerre.  
 led croix de guerre.  
 named in General Order No. 40, Headquarters, Second Division.  
 T. Commander, Medical Corps, United States Navy, Fifth Regiment, United States Marine Corps.  
 named in General Order No. 40, Headquarters, Second Division.  
 S. D., Jr. Lieutenant, Medical Corps, United States Naval Reserve, Fifth Regiment, United States Marine Corps.  
 named for distinguished service cross, Champagne sector.  
 named for croix de guerre, Champagne sector.  
 led distinguished service cross.  
 led croix de guerre.  
 T. Lieutenant, Medical Corps, United States Navy, Sixth Regiment, United States Marine Corps.  
 for distinguished service cross at Vierzy, France.  
 led distinguished service cross.  
 led croix de guerre with palm, Soissons offensive.  
 named in Division General Order No. 53 for action at Vierzy.  
 P. Lieutenant, Medical Corps, United States Navy, Fifth Regiment, United States Marine Corps.  
 named for croix de guerre, Champagne sector.  
 named for croix de guerre, Champagne sector.  
 led croix de guerre.  
 led croix de guerre.

taken from Annual Report, 1918. This list is not complete but gives names up to date, principally of officers and men serving with Marines.

- GRIMLAND, G. A.** Lieutenant, Medical Corps, United States Navy, Sixth Regiment, United States Marine Corps.  
Cited for American distinguished service cross at Thiaucourt (St. Mihiel sector).
- HOCK, F. R.** Lieutenant, Medical Corps, United States Navy, Fifth Regiment, United States Marine Corps.  
Recommended for distinguished service cross at Bois de Belleau.  
Recommended for croix de guerre, Champagne sector.  
Awarded distinguished service cross.  
Awarded croix de guerre.  
Cited in General Order No. 44, Headquarters, Second Division.
- HUFFMAN, L. D.** Lieutenant, Medical Corps, United States Navy, Sixth Regiment, United States Marine Corps.  
Cited for American distinguished service cross at Argonne-Meuse offensive.
- JURIS, L. E.** Lieutenant, Medical Corps, United States Navy, Sixth Regiment, United States Marine Corps.  
Cited for croix de guerre at Blanc Mont.  
Awarded croix de guerre with gold star.
- LAWLER, R. J.** Lieutenant, Medical Corps, United States Naval Reserve Force, Fifth Regiment, United States Marine Corps.  
Recommended for croix de guerre at Champagne sector.  
Awarded croix de guerre with palm, Champagne sector.  
Recommended for distinguished service medal.  
Recommended for distinguished service cross.
- LOCY, F. E.** Lieutenant, Medical Corps, United States Navy, Sixth Regiment, United States Marine Corps.  
Cited for croix de guerre at Blanc Mont.  
Awarded croix de guerre with gold star.
- LYLE, A. G.** Lieutenant, Dental Corps, United States Navy, Fifth Regiment, United States Marine Corps.  
Cited in General Order No. 35, headquarters, Second Division.
- MACK, C. H.** Lieutenant Commander, Dental Corps, United States Navy, Sixth Regiment, United States Marine Corps.  
Cited for croix de guerre, Soissons offensive.  
Cited for distinguished service cross at Vierzy.  
Awarded the croix de guerre.
- McLENDON, P. A.** Lieutenant, Medical Corps, United States Navy, Fifth Regiment, United States Marine Corps.  
Recommended for distinguished service cross, Champagne sector.  
Recommended for croix de guerre, Champagne sector.  
Awarded distinguished service cross.  
Awarded croix de guerre.
- MORING, T. S.** Lieutenant, Medical Corps, United States Navy, Sixth Machine Gun Battalion, United States Marine Corps.  
Recommended for croix de guerre, Champagne sector.  
Awarded croix de guerre.  
Recommended for distinguished service cross, Champagne sector.
- PETTY, O. H.** Lieutenant, Medical Corps, United States Navy, Fifth Regiment, United States Marine Corps.  
Recommended for distinguished service cross at Bois de Belleau.  
Awarded distinguished service cross.
- PRATT, L. L.** Lieutenant Commander, Medical Corps, United States Navy, Fifth Regiment, United States Marine Corps.  
Recommended for distinguished service cross at Bois de Belleau.  
Recommended for croix de guerre.  
Awarded distinguished service cross.  
Awarded croix de guerre.
- SHEA, R. O'B.** Lieutenant, Medical Corps, United States Navy, Fifth Regiment, United States Marine Corps.  
Recommended for croix de guerre.  
Cited in General Order No. 40.  
Awarded croix de guerre.

B. B. Pharmacist, United States Navy, Fifth Regiment, United States Marine Corps.  
 Recommended for distinguished service cross at St. Mihiel sector.  
 Awarded distinguished service cross.  
 G. C. Pharmacist, United States Navy, Sixth Regiment, United States Marine Corps.  
 Recommended for distinguished service cross at Bois de Belleau.  
 Recommended for distinguished service cross at Vierzy.  
 Recommended for distinguished service cross at Blanc Mont.  
 Mentioned in Division General Order No. 40 for action in Bois de Belleau.  
 Awarded croix de guerre.  
 Surgeon, S. J. Lieutenant (j. g.), Medical Corps, United States Navy, Sixth Regiment, United States Marine Corps.  
 Recommended for croix de guerre at Champagne offensive.  
 Awarded croix de guerre with palm.

## ENLISTED PERSONNEL.

A. C. S. Pharmacist's mate, first class, United States Navy, Fifth Regiment, United States Marine Corps.  
 Recommended for croix de guerre.  
 Awarded croix de guerre.  
 Mentioned in General Order No. 44, Headquarters, Second Division, at Belleau Wood.  
 G. W. Pharmacist's mate, second class, United States Navy, Fifth Regiment, United States Marine Corps.  
 Recommended for distinguished service cross in Champagne sector.  
 Awarded distinguished service cross.  
 B. Pharmacist's mate, third class, United States Navy, Fifth Regiment, United States Marine Corps.  
 Recommended for distinguished service cross.  
 Awarded distinguished service cross.  
 C. H. Pharmacist's mate, first class, United States Navy, Sixth Regiment, United States Marine Corps.  
 Recommended for distinguished service cross at Bois de Belleau.  
 Recommended for croix de guerre at Blanc Mont.  
 Recommended for medaille militaire at Blanc Mont.  
 Awarded croix de guerre.  
 Mentioned in Division General Order No. 40.  
 L. M. Pharmacist's mate, second class, United States Navy, Sixth Regiment, United States Marine Corps.  
 Recommended for distinguished service cross at Bois de Belleau.  
 Recommended for distinguished service cross at Vierzy.  
 Mentioned in Division General Order No. 40.  
 Awarded croix de guerre.  
 J. C. W. Pharmacist's mate, second class, United States Navy, Sixth Regiment, Gun Battalion, United States Marine Corps.  
 Recommended for croix de guerre at Bois de Belleau.  
 Recommended for distinguished service cross in St. Mihiel sector.  
 Recommended for croix de guerre, Champagne sector.  
 J. Chief pharmacist's mate, United States Naval Reserve Force, Fifth Regiment, United States Marine Corps.  
 Recommended for distinguished service cross in Champagne sector.  
 Awarded distinguished service cross.  
 F. Pharmacist's mate, third class, United States Navy, Fifth Regiment, United States Marine Corps.  
 Recommended for distinguished service cross in Champagne sector.  
 Awarded distinguished service cross.  
 J. C. Chief pharmacist's mate, United States Navy, Sixth Regiment, United States Marine Corps.  
 Recommended for distinguished service cross at Vierzy.  
 Awarded croix de guerre.  
 M. L. Hospital apprentice, first class, United States Navy, Sixth Regiment, United States Marine Corps.  
 Recommended for distinguished service cross at Thiaucourt.

- BIRD, F. M.** Chief pharmacist's mate, United States Navy, Fifth Regiment, United States Marine Corps.  
Recommended for distinguished service cross in Champagne sector.  
Awarded distinguished service cross.
- BONE, M. T.** Hospital apprentice, first class, United States Navy, Sixth Regiment, United States Marine Corps.  
Cited for distinguished service cross at Bois de Belleau.  
Awarded croix de guerre with gold star.
- BOWMAN, A. L.** Pharmacist's mate, second class, United States Navy, Fifth Regiment, United States Marine Corps.  
Recommended for distinguished service cross.  
Awarded distinguished service cross.
- BRACKEN, W. J.** Pharmacist's mate, first class, United States Navy, Sixth Regiment, United States Marine Corps.  
Cited for distinguished service cross at Blanc Mont.  
Cited for croix de guerre at Blanc Mont.  
Awarded croix de guerre.
- BROGDEN, R. R.** Pharmacist's mate, second class, United States Navy, Sixth Regiment, United States Marine Corps.  
Cited for distinguished service cross at Thiacourt.  
Cited for croix de guerre at Blanc Mont.  
Awarded distinguished service cross.
- BROWN, R. R.** Pharmacist's mate, third class, United States Navy, Sixth Regiment, United States Marine Corps.  
Cited for croix de guerre at Blanc Mont.
- BROWNFIELD, T.** Pharmacist's mate, second class, United States Navy, Sixth Regiment, United States Marine Corps.  
Cited for distinguished service cross at Bois de Belleau.  
Cited for croix de guerre at Blanc Mont.  
Awarded croix de guerre.
- BRUSH, W. T.** Pharmacist's mate, third class, United States Navy, Fifth Regiment, United States Marine Corps.  
Recommended for croix de guerre in Champagne sector.  
Awarded croix de guerre.
- CAMPBELL, C. C.** Pharmacist's mate, second class, United States Navy, Sixth Regiment, United States Marine Corps.  
Cited for distinguished service cross at Bois de Belleau.  
Mentioned in Division General Order No. 44.  
Awarded croix de guerre.
- CLARK, T. H.** Chief pharmacist's mate, United States Navy, Fifth Regiment, United States Marine Corps.  
Recommended for croix de guerre.  
Awarded croix de guerre.
- COCHRANE, R. S.** Chief pharmacist's mate, United States Navy, Sixth Machine Gun Battalion, United States Marine Corps.  
Recommended for distinguished service cross in Champagne sector.  
Awarded distinguished service cross.
- COFFEE, J. A.** Pharmacist's mate, second class, United States Navy, Fifth Regiment, United States Marine Corps.  
Recommended for croix de guerre.  
Awarded croix de guerre.
- COOK, C. S.** Chief pharmacist's mate, United States Navy, Fifth Regiment, United States Marine Corps.  
Recommended for croix de guerre in Champagne sector.  
Awarded croix de guerre.
- DENT, M. E.** Chief pharmacist's mate, United States Navy, Sixth Regiment, United States Marine Corps.  
Cited for distinguished service cross at Bois de Belleau.  
Cited for croix de guerre at Bois de Belleau.  
Awarded croix de guerre.
- EDWARDS, J. C.** Pharmacist's mate, second class, United States Navy, Sixth Machine Gun Battalion, United States Marine Corps.  
Recommended for croix de guerre in Champagne sector.
- EVANS, W. D.** Pharmacist's mate, second class, United States Navy, Sixth Regiment, United States Marine Corps.  
Cited for distinguished service cross at Bois de Belleau.  
Awarded croix de guerre.  
Mentioned in Division General Order No. 40.



L. H. Pharmacist's mate, second class, United States Navy, Sixth  
ine Gun Battalion, United States Marine Corps.

commended for croix de guerre in Champagne sector.

arded croix de guerre.

C. L. Pharmacist's mate, first class, United States Navy, Sixth Regi-  
United States Marine Corps.

ed for distinguished service cross at Bois de Belleau.

ed for distinguished service cross at Vierzy.

arded croix de guerre.

arded croix de guerre.

rons, F. L. Pharmacist's mate, third class, United States Navy, Sixth  
ent, United States Marine Corps.

ed for distinguished service cross at Bayonville, France.

, H. T. Pharmacist's mate, first class, United States Navy, Sixth Ma-  
Gun Battalion, United States Marine Corps.

commended for croix de guerre in Soissons sector.

arded croix de guerre.

H. D. Chief pharmacist's mate, United States Navy, Sixth Regiment,  
d States Marine Corps.

ed for distinguished service cross at Vierzy.

mentioned in Division General Order No. 53.

arded croix de guerre.

b, W. J. Pharmacist's mate, second class, United States Navy, Fifth  
ent, United States Marine Corps.

commended for croix de guerre in Champagne sector.

arded croix de guerre.

, F. H. Pharmacist's mate, first class, United States Navy, Sixth Ma-  
Gun Battalion, United States Marine Corps.

commended for croix de guerre.

arded croix de guerre.

N. C. Pharmacist's mate, first class, United States Navy, Fifth Regi-  
United States Marine Corps.

commended for croix de guerre in Champagne sector.

arded croix de guerre.

ed in Division General Order No. 53, Headquarters, Second Division.

s, O. S. Pharmacist's mate, first class, United States Navy, Sixth Regi-  
United States Marine Corps.

ed for distinguished service cross, Bois de Belleau.

ed for distinguished service cross, Vierzy.

ed for distinguished service cross, Thiaucourt.

mentioned in Division Order No. 40.

arded croix de guerre.

AM, J. E. Hospital apprentice, first class, United States Navy, Sixth  
ent, United States Marine Corps.

ed for distinguished service cross at Argonne-Meuse offensive.

M, M. L. Pharmacist's mate, second class, United States Navy, Fifth  
ent, United States Marine Corps.

commended for croix de guerre.

arded croix de guerre.

V. B. Pharmacist's mate, second class, United States Navy, Sixth Regi-  
United States Marine Corps.

ed for distinguished service cross at Blanc Mont.

C. P. Pharmacist's mate, third class, United States Navy, Sixth Regi-  
United States Marine Corps.

ed for distinguished service cross at Vierzy.

ed for distinguished service cross at Thiaucourt.

arded croix de guerre.

n, H. J. Pharmacist's mate, first class, United States Navy, Fifth Regi-  
United States Marine Corps.

commended for croix de guerre in Champagne sector.

arded croix de guerre.

nd, C. H. Chief Pharmacist's Mate, United States Navy, Fifth Regiment,  
d States Marine Corps.

commended for croix de guerre.

arded croix de guerre.

- HOGGATT, R. M.** Pharmacist's Mate, second class, United States Navy, Fifth Regiment, United States Marine Corps.  
Recommended for croix de guerre.  
Awarded croix de guerre.
- HORN, G. E.** Pharmacist's Mate, second class, United States Navy, Sixth Machine Gun Battalion, United States Marine Corps.  
Recommended for croix de guerre at Bois de Belleau.
- HULL, R. E.** Pharmacist's Mate, second class, United States Navy, Fifth Regiment, United States Marine Corps.  
Cited in General Order No. 44 Headquarters, Second Division.
- ISRAEL, R. J.** Pharmacist's Mate, first class, United States Navy, Fifth Regiment, United States Marine Corps.  
Recommended for croix de guerre in Champagne offensive.  
Awarded croix de guerre.
- JAMME, J. H.** Pharmacist's Mate, second class, United States Navy, Fifth Regiment, United States Marine Corps.  
Cited in General Order No. 44 Headquarters, Second Division.  
Cited in General Order No. 53 Headquarters, Second Division.  
Recommended for croix de guerre.  
Awarded croix de guerre.
- JENNISON, C. S.** Pharmacist's Mate, first class, United States Navy, Fifth Regiment, United States Marine Corps.  
Recommended for distinguished service cross.  
Awarded distinguished service cross.
- JUSTICE, J. E.** Pharmacist's Mate, second class, United States Navy, Sixth Regiment, United States Marine Corps.  
Cited for distinguished service cross at Bois de Belleau.  
Awarded croix de guerre with gold star.
- KAGA, R. L.** Pharmacist's Mate, first class, United States Navy, Sixth Regiment, United States Marine Corps, and Sixth Machine Gun Battalion.  
Cited for distinguished service cross at Thiaucourt.  
Awarded croix de guerre.
- KINKLE, C. A.** Pharmacist's Mate, third class, United States Navy, Sixth Regiment, United States Marine Corps.  
Cited for distinguished service cross at Vierzy.  
Cited for croix de guerre at Blanc Mont.  
Mentioned in Division General Order No. 53.  
Awarded croix de guerre.
- KINGSBURY, C. O.** Hospital apprentice, first class, United States Navy, Sixth Regiment, United States Marine Corps.  
Cited for distinguished service cross at Verdun sector.  
Awarded distinguished service cross.
- KIRKLAND, A. B.** Pharmacist's mate, second class, United States Navy, Sixth Machine Gun Battalion.  
Recommended for croix de guerre at Bois de Belleau.  
Recommended for croix de guerre in Champagne sector.
- LAWRENCE, L. W.** Pharmacist's mate, third class, United States Navy, Fifth Regiment, United States Marine Corps.  
Recommended for croix de guerre.  
Awarded croix de guerre.
- LAYTON, L. K.** Hospital apprentice, first class, United States Navy, Sixth Regiment, United States Marine Corps.  
Cited for distinguished service cross at Vierzy.  
Awarded croix de guerre.
- LEWIS, S. J.** Pharmacist's mate, first class, United States Navy, Sixth Regiment, United States Marine Corps.  
Cited for distinguished service cross at Blanc Mont.  
Awarded croix de guerre.
- LITCHFIELD, J. R.** Pharmacist's mate, third class, United States Navy, Sixth Regiment, United States Marine Corps.  
Cited for distinguished service cross at Bois de Belleau.  
Cited for distinguished service cross at Thiaucourt.  
Awarded distinguished service cross.  
Awarded croix de guerre.
- LUNDAY, L. S.** Pharmacist's mate, third class, United States Navy, Sixth Machine Gun Battalion, United States Marine Corps.  
Recommended for croix de guerre at Bois de Belleau.

AN, O. K. Chief pharmacist's mate, United States Navy, Sixth Machine Battalion, United States Marine Corps.  
commended for croix de guerre at Bois de Belleau.

AG, J. E. Pharmacist's mate, second class, United States Navy, Sixth Regiment, United States Marine Corps.  
commended for distinguished service cross, St. Mihiel sector.  
commended for croix de guerre in Champagne sector.  
commended distinguished service cross.  
commended croix de guerre.

J. H. Pharmacist's mate, second class, United States Navy, Sixth Regiment, United States Marine Corps.  
commended for distinguished service cross at Bois de Belleau.  
commended for distinguished service cross at Vlerzy.  
mentioned in Division General Orders No. 44 and No. 53.  
commended croix de guerre.

H. E. Hospital apprentice, second class, United States Navy, Sixth Regiment, United States Marine Corps.  
commended for croix de guerre at Blanc Mont.  
commended croix de guerre.

GLY, C. Chief pharmacist's mate, United States Navy, Fifth Regiment, United States Marine Corps.  
commended for croix de guerre.  
commended croix de guerre.  
mentioned in General Order No. 44, Headquarters, Second Division.

EL, L. J. Pharmacist's mate, first class, United States Navy, Fifth Regiment, United States Marine Corps.  
commended for croix de guerre.  
commended croix de guerre.  
mentioned in General Order No. 44, Headquarters, Second Division.

ERY, LER. N. Pharmacist's mate, second class, United States Navy, Fifth Regiment, United States Marine Corps.  
mentioned in General Order No. 44, Headquarters, Second Division.  
mentioned in General Order No. 53, Headquarters, Second Division.

E. C. Pharmacist's mate, third class, United States Navy, Fifth Regiment, United States Marine Corps.  
commended for distinguished service cross.  
commended distinguished service cross.

ELLE, R. A. Pharmacist's mate, first class, United States Navy, Fifth Regiment, United States Marine Corps.  
commended for distinguished service cross in Champagne sector.  
commended distinguished service cross.

R. Q. Pharmacist's mate, second class, United States Navy, Sixth Regiment, United States Marine Corps.  
commended for distinguished service cross at Bois de Belleau.  
commended croix de guerre.

V. A. Pharmacist's mate, second class, United States Navy, Fifth Regiment, United States Marine Corps.  
commended for distinguished service cross.  
commended distinguished service cross.

W. V. Pharmacist's mate, third class, United States Navy, Fifth Regiment, United States Marine Corps.  
commended for distinguished service cross in Champagne sector.  
commended distinguished service cross.

N, G. I. Pharmacist's mate, third class, United States Navy, Fifth Regiment, United States Marine Corps.  
commended for distinguished service cross in Champagne sector.  
commended distinguished service cross.  
mentioned in General Order No. 44, Headquarters, Second Division.

F. E. Pharmacist's mate, second class, United States Navy, Sixth Regiment, United States Marine Corps.  
commended for croix de guerre at Blanc Mont.  
commended croix de guerre.

RON, A. W. Hospital apprentice, first class, United States Navy, Sixth Regiment, United States Marine Corps.  
commended for distinguished service cross at Thiaucourt.  
commended croix de guerre.

- REED, E. B. Pharmacist's mate, first class, United States Navy, Fifth Regiment, United States Marine Corps.  
Recommended for distinguished service cross in Champagne sector.  
Awarded distinguished service cross.
- REISTER, J. E. Pharmacist's mate, first class, United States Navy, Sixth Regiment, United States Marine Corps.  
Cited for distinguished service cross at Bois de Belleau.  
Awarded croix de guerre.
- ROGERS, B. F. Pharmacist's mate, first class, United States Navy, Fifth Regiment, United States Marine Corps.  
Recommended for distinguished service cross in Champagne sector.  
Awarded distinguished service cross.
- RUSSELL, T. N. Chief pharmacist's mate, United States Navy, Fifth Regiment, United States Marine Corps.  
Recommended for croix de guerre.  
Recommended for distinguished service cross.  
Awarded croix de guerre.  
Awarded distinguished service cross.  
Cited in General Order No. 44, Headquarters, Second Division.
- SANDERSON, O. B. Pharmacist's mate, first class, United States Navy, Sixth Regiment, United States Marine Corps.  
Cited for croix de guerre at Blanc Mont.  
Awarded croix de guerre.
- SCHULER, L. B. Hospital apprentice, first class, United States Navy, Fifth Regiment, United States Marine Corps.  
Cited in General Order No. 44, Headquarters, Second Division.
- SIMMER, T. Pharmacist's mate, first class, United States Navy.  
Cited in General Order No. 35, Headquarters, Second Division.
- SMITH, E. C. Pharmacist's mate, second class, United States Navy, Sixth Regiment, United States Marine Corps.  
Cited for distinguished service cross at Bois de Belleau.  
Mentioned in Division General Order No. 40.  
Awarded croix de guerre.
- SMITH, J. E. Chief pharmacist's mate, United States Navy, Fifth Regiment, United States Marine Corps.  
Recommended for croix de guerre in Champagne sector.  
Awarded croix de guerre.
- SMITH, T. R. Chief pharmacist's mate, United States Navy, Sixth Regiment, United States Marine Corps.  
Cited for croix de guerre at Blanc Mont.  
Awarded croix de guerre.
- SPENCE, M. W. Pharmacist's mate, first class, United States Navy, Sixth Regiment, United States Marine Corps.  
Cited for distinguished service cross at Bois de Belleau.
- STATON, E. C. Pharmacist's mate, third class, United States Navy, Sixth Regiment, United States Marine Corps.  
Cited for croix de guerre at Blanc Mont.  
Awarded croix de guerre.
- STONE, R. O. Chief pharmacist's mate, United States Navy, Fifth Regiment, United States Marine Corps.  
Recommended for croix de guerre in Champagne sector.  
Awarded croix de guerre.
- STRATFORD, P. C. Chief pharmacist's mate, United States Navy, Sixth Regiment, United States Marine Corps.  
Cited for distinguished service cross at Bois de Belleau.  
Awarded croix de guerre.
- TAYLOR, L. R. Pharmacist's mate, second class, United States Navy, Sixth Regiment, United States Marine Corps.  
Cited for distinguished service cross at Bayonville, France.
- TEMPLETON, P. V. Chief pharmacist's mate, United States Navy, Sixth Regiment, United States Marine Corps.  
Cited for distinguished service cross at Bouresche.  
Cited for croix de guerre at Blanc Mont.  
Awarded croix de guerre.  
Mentioned in Division General Order No. 40.

A. H. Hospital apprentice, first class, United States Navy, Fifth Regiment, United States Marine Corps.  
 Recommended for distinguished service cross in Champagne sector.  
 Awarded distinguished service cross.

B. M. Pharmacist's mate, first class, United States Navy, Fifth Regiment, United States Marine Corps.  
 Recommended for croix de guerre in Champagne sector.  
 Awarded croix de guerre.

F. Chief pharmacist's mate, United States Navy, Fifth Regiment, United States Marine Corps.  
 Recommended for distinguished service cross in Champagne sector.  
 Awarded distinguished service cross.

M. L. Pharmacist's mate, second class, United States Navy, Fifth Regiment, United States Marine Corps.  
 Recommended for croix de guerre in Champagne sector.  
 Awarded croix de guerre.

B. Pharmacist's mate, third class, United States Navy, Fifth Regiment, United States Marine Corps.  
 Mentioned in General Order No. 53, Headquarters Second Division.

W. J. L. Pharmacist's mate, second class, United States Navy, Sixth Regiment, United States Marine Corps.  
 Recommended for distinguished service cross at Bois de Belleau.  
 Mentioned in Division General Order No. 40.  
 Awarded croix de guerre.

W. L. V. L. Pharmacist's mate, second class, United States Navy, Sixth Regiment, United States Marine Corps.  
 Recommended for distinguished service cross at Vierzy.  
 Awarded croix de guerre.  
 Mentioned in Division General Order No. 52.

W. C. R. Pharmacist's mate, third class, United States Navy, Sixth Regiment, United States Marine Corps.  
 Recommended for distinguished service cross at Bois de Belleau.  
 Awarded croix de guerre.

W. C. H. Chief pharmacist's mate, United States Navy, Sixth Regiment, United States Marine Corps.  
 Recommended for distinguished service cross at Bois de Belleau.  
 Awarded croix de guerre.

H. K. Pharmacist's mate, second class, United States Navy, Fifth Regiment, United States Marine Corps.  
 Recommended for croix de guerre.  
 Awarded croix de guerre.  
 Mentioned in General Order No. 53, Headquarters, Second Division.

W. J. Q. Pharmacist's mate, second class, United States Navy, Sixth Regiment, United States Marine Corps.  
 Recommended for distinguished service cross at Bois de Belleau.  
 Mentioned in Division General Order No. 40.  
 Awarded croix de guerre.

D. Pharmacist's mate, third class, United States Navy, Sixth Machine Gun Battalion, United States Marine Corps.  
 Recommended for distinguished service cross in Champagne sector.  
 Awarded distinguished service cross (posthumously).

F. E. Pharmacist's mate, second class, United States Navy, Sixth Regiment, United States Marine Corps.  
 Recommended for croix de guerre at Blanc Mont.

F. R. Pharmacist's mate, second class, United States Navy, Sixth Machine Gun Battalion, United States Marine Corps.  
 Recommended for distinguished service cross in Argonne-Meuse sector.  
 Awarded distinguished service cross.

## SUMMARY.

For distinguished service cross:	
Commissioned personnel-----	12
Listed personnel-----	45
For croix de guerre:	
Commissioned personnel-----	7
Listed personnel-----	18

Awarded <i>croix de guerre</i> :	
Commissioned personnel .....	19
Enlisted personnel .....	93
Awarded distinguished service cross:	
Commissioned personnel .....	13
Enlisted personnel .....	29
Recommended for distinguished service cross:	
Commissioned personnel .....	11
Enlisted personnel .....	22
Recommended for <i>croix de guerre</i> :	
Commissioned personnel .....	10
Enlisted personnel .....	33
Cited for medals:	
Commissioned personnel—	
Medal of honor .....	1
Distinguished service medal .....	2
Enlisted personnel—	
Medaille militaire .....	1
Mentioned in general orders:	
Commissioned personnel .....	11
Enlisted personnel .....	24

#### DIVISION OF PREVENTATIVE MEDICINE.

During the year advantage was taken of the opportunity afforded by revision of the organization chart of the bureau to change the name of this division from division of sanitation to division of preventive medicine, a term more expressive of the activities carried on, even though limited to those of a central organization and more consistent with modern terminology. The term "sanitation," has come to have a somewhat restricted meaning and now applies almost altogether to conditions in the environment with special reference to housing, cleanliness, disposal of sewage, garbage, and refuse, maintenance of purity of the water supply, etc. The practice of preventive medicine includes sanitation and is concerned with all conditions which have a bearing on the occurrence and spread of disease.

Good sanitation is important, of course, but after all, the environment really plays a subordinate part in matters affecting community health. It is the individual and his habits, and groups of individuals and their habits, that are chiefly responsible for the dissemination of disease.

The prevention and control of communicable diseases require careful epidemiological studies, the resources of the modern diagnostic laboratory, familiarity with immunologic methods, detection of healthy carriers of the causative agents of disease, early diagnosis, prompt isolation of the sick in suitable quarters, control of those who have been exposed to disease, relief of overcrowding, attention to ventilation and personal hygiene, maintenance of sanitation and education of the personnel along the lines of public health.

*Duties of the division.*—The activities of this division were reported in some detail last year. They may be summarized briefly as follows:

1. Collection and compilation of morbidity and mortality statistics both for their historical and epidemiological value and for purposes of immediate study; preparation of charts and other graphic records for current use in following the incidence and prevalence of disease from week to week.

Supervision of the prevention and control of communicable diseases; epidemiological studies.

Study of sanitary conditions and recommendations regarding improvement where necessary, with special reference to housing, and bathing facilities, drainage, purity of the water supply, disposal of sewage, disposal of refuse, extermination of insects and food and conditions under which food is received, prepared, served, ventilation and ship hygiene, personal hygiene, and clothing.

Recommendations relating to industrial hygiene.

Study of health conditions in civilian communities constituting environment of naval stations and ports visited by naval vessels. Recommendations in matters requiring cooperation with Federal, State, and local health officials.

Dissemination of information relating to preventive medicine and the use of medical officers of the Navy.

*Changes in personnel.*—Shortly after the armistice was signed in November, 1918, Surgeon H. S. Cumming, United States Public Health Service, was detached to undertake a mission in Europe for the United States Public Health Service.

At the height of the influenza epidemic when the Navy Department occupied several buildings in different parts of the city, Lieutenant C. D. Sinkinson, Medical Corps, United States Naval Reserve Force was attached to the bureau for field work in connection with the institution of preventive measures among the clerical force of the department and sanitary inspections of offices and upon the request of Surgeon Cumming certain office duties were assigned him in addition to inspections and miscellaneous sanitary work.

*Activities during the year.*—During the autumn of 1918 the division of preventive medicine was almost completely occupied with the study of influenza and efforts to control epidemics. Since then it has been engaged largely in reviewing and correlating the mass of data accumulated on this disease, received from all parts of the world.

Unfortunately with the completion of the expansion of the Navy and the perfection of local medical organizations, both ashore and afloat, other communicable diseases required comparatively little attention in the bureau other than the routine collection and study of statistical data, and an occasional request for an epidemiological consultation. In practically all instances outbreaks of disease were quickly suppressed, thoroughly studied, and promptly reported in a most satisfactory manner.

Among the various problems in sanitation studied during the year may be mentioned: Control of the breeding of malaria-carrying mosquitoes at various stations; sanitation of Key West, Fla.; disinfection of fresh water taken on board vessels not having distilling apparatus; treatment of water taken on board vessels for washing drinking purposes in the St. Lawrence River and on the Lakes; improvement of sanitary drinking fountains; disinfection of swimming pool water by means of chlorine, ozone, and ultra-violet ray; disposal of sewage at various stations; the need for crews' laundries on receiving ships; transportation of drafts in sleeping cars; ventilation and heating of living compartments on board ship; ventilation and heating of the Navy Department building; and various problems of industrial hygiene.

The housing problem, so serious in the first year of the war, because it was directly related to the prevalence of communicable diseases of the respiratory type at several stations and indirectly responsible for much of the disease introduced into the fleet, received so much attention in 1917 that housing conditions in general were comparatively satisfactory in 1918, considering the continued expansion of the Navy. The housing standards recommended early in the war for all barracks of the emergency type from the standpoint of preventive medicine were adopted by the Bureau of Yards and Docks forthwith and were embodied in all subsequent construction. Practically all construction planned by the Bureau of Yards and Docks resulted in buildings of excellent type and design and sanitary requirements were met as well as could be expected under the conditions obtaining. As a matter of fact, housing conditions would have been excellent at practically all stations if the number of men quartered in barracks had been limited to that which the buildings were planned to accommodate. Actually, overcrowding to a serious degree continued throughout the war, notably in receiving ships toward the end of the war, and, as was to be expected, this condition proved to be of grave epidemiological significance to the end. Preventive medicine has not yet reached a stage where the health and lives of large numbers of men can be adequately safeguarded in barracks during epidemics of the respiratory diseases. When overcrowding exists, the consequences are likely to be disastrous at any time.

In barracks, not more than 50 men should be quartered in any one compartment or room, and there should never be less than 50 square feet of floor area per man provided in rooms or compartments used for sleeping purposes. Theoretically, under proper housing standards, men can be safely quartered in barracks in large numbers, but practically, the personal habits of the average individual even under perfect discipline are such that the interchange of infectious material among all occupants can not be prevented under barrack conditions. Overcrowding, closely related as it is to personal habits, thus becomes an epidemiological factor of great importance in promoting the dissemination of the causative agents of respiratory diseases, once they are introduced, even though all other sanitary conditions are excellent. In spite of general and special preventive measures the tendency is for the bacterial flora of the nasopharynx to become uniform throughout the personnel in barracks.

The need for laundry facilities was felt acutely in the receiving ship at New York, and a laundry is now being installed. From a sanitary standpoint it is highly desirable that facilities should be available for laundering the clothing of enlisted men at all receiving ships as well as on board vessels in which it is practicable to install the required equipment.

Sanitary conditions at several of the Navy rifle ranges were unsatisfactory during the war and far below standards met at all other types of naval station. Sites must necessarily be chosen primarily for laying ranges for long-distance shooting, and the best environment can not always be insisted upon. However, swamp lands and mosquito-breeding areas should be avoided in so far as possible. The United States Navy Rifle Range, Caldwell, N. J., is particularly bad in these respects, and it is hoped that it will be abandoned this summer.



le living conditions at a rifle range are expected more or less to simulate field conditions, the fundamental principles of sanitation must be rigidly observed. These principles are: To dispose of human excrement, garbage, and other refuse in a sanitary manner; to provide an adequate and safe supply of fresh water, to protect from contamination that supply and any stream which may eventually form a part of a community water supply; to provide sanitary facilities for cooking mess gear; to provide adequate toilet and washing facilities for the maximum number of men to occupy the range, temporary as well as permanent working force; to provide proper storage for food supplies, protection of foods against flies, and hygienic conditions for sleeping; to insure protection against mosquitoes in barracks or tents, and to provide a sufficient number of tents or adequate housing to prevent overcrowding.

The control of mosquito breeding for the prevention of malaria is a primary problem of magnitude at several naval stations, among which may be mentioned the navy yard, Charleston, S. C.; naval operating base, Hampton Roads, Va.; naval station, Key West, Fla.; naval air station, Pensacola, Fla.; naval training camp, Gulfport, Miss.; naval station, New Orleans, La.; marine barracks, Quantico, Va.; marine barracks, Parris Island, S. C.; naval air station, Miami, Fla.; naval station, Guantanamo Bay, Cuba; submarine base and air station, Coco Solo, Panama.

The pest of mosquitoes existing in the navy yard, Philadelphia, has been attacked in a comprehensive way during the past year. A large amount of work has been done this summer by a board appointed by the commandant to cooperate systematically with the anti-mosquito campaign. Much relief from the mosquito nuisance was obtained last year and as practically all of the work is in the nature of permanent improvement results will be shown in succeeding years.

The reservation consisting of the naval operating base, Hampton Roads, Va., and the newer east camp contained extensive mosquito-breeding areas when taken over by the Government. The surrounding territory in Norfolk County contains many swamps and small bodies of water which serve as prolific breeding places. Anopheles mosquitoes are found there. During the war the United States Public Health Service carried on mosquito-control work in the extrajurisdictional zone as actively as funds would permit but was forced to discontinue its activities altogether June 30, 1919, for lack of money. It appears that such work is not to be carried on by the State health department and as represented by Norfolk County officials it is not to be expected that the county will concentrate its work for the protection of a noncivilian population when with the limited appropriations available for the control of malaria other sections of the county are forced to have to go without such work.

At the naval operating base the situation at present is quite satisfactory in the older sections, but much work remains to be done in the outskirts, particularly in the east camp, all parts of which are at a short flight distance of the main reservation.

Constructive programs should be adopted for all stations where mosquito-carrying mosquitoes are breeding. Sufficient funds should be made available to provide for systematic control from year to year with a reasonable advance in work of a permanent nature, mainly in connection with permanent improvements already se-

cured, and emergency work during each mosquito breeding season in the form of temporary ditching, oiling, drainage, and plant cutting.

Fortunately the mortality from malaria is low, but economic losses in the aggregate are comparatively great. Indeed, from an industrial standpoint it is profitable in the long run to control breeding where mosquitoes constitute a pest, even though malaria is not prevalent. In great industrial centers there will be little difficulty in the future about securing the cooperation of State and local authorities and business interests for the eradication of mosquitoes in the vicinity of naval stations, but at stations surrounded by unimproved property it is not to be expected that protection from the environment can be secured except by the Navy itself. Cooperation from outside sources can not be had unless the Navy sets the example by carrying out efficient control in its own reservations. Where malaria is being disseminated it should be possible for the naval authorities to spend sufficient money and perform the necessary work beyond the limits of the station to protect the health of naval personnel.

Sanitation in the city of Key West, Fla., because of its direct influence upon the health and welfare of naval personnel stationed there as well as of the crews of numerous vessels visiting the key has been a problem throughout the war. The basic insanitary condition is the lack of a piped water supply. The city is low and has no public sewage-disposal system. Except for a limited supply of fresh water hauled in tank cars, dependence is placed upon rain water, and the supply from this source is not infrequently precarious. The question of providing a piped water supply for the city and naval station was investigated by the Bureau of Yards and Docks in 1918, and careful consideration was given to the whole subject from a sanitary viewpoint by this division. The Bureau of Medicine and Surgery concurred in the recommendations of the Bureau of Yards and Docks that the matter be brought to the attention of the Congress. The problem is just as important now as it was last year, in view of plans for the development of Key West as a naval station. The resources of the city are inadequate to finance the project of piping water from Homestead, Fla., the nearest point at which an adequate supply can be secured, and it was recommended that the city be assisted by the United States Government, the city standing ready to install a water carriage sewerage system and pass proper ordinances requiring all householders to connect with the sewer and to install running water. It is believed that the saving in the cost of fresh water used by the Navy, in conjunction with the improvement of health conditions and sanitation in general in the city, is sufficient to justify Federal cooperation in putting through the project of piping an adequate public water supply to the island.

The question of the policy to be pursued with regard to compulsory vaccination of civil employees in industrial yards has arisen in several instances. Compulsory vaccination is not only to the best interests of the Government but to the best interests of the employees themselves in so far as protection against typhoid fever, paratyphoid fever, and smallpox are concerned. Submission to typhoid prophylaxis and successful vaccination against smallpox might well be made one of the conditions under which applicants for employment are

unless satisfactory evidence of protection within a period of six months is presented.

Sanitary and hygienic conditions afloat have in general been satisfactory. Many ships were necessarily greatly overcrowded during the war. The cardinal principles of sanitation are very generally followed to a high degree on board vessels of the Navy. The problem of heating the air supply of ships satisfactorily in cold weather and reducing the relative humidity of the air in living compartments is a percentage conducive to the development of nasopharyngitis has not been solved. At present sanitary reports indicate that the old system of delivering cold air through blowers and upon steam radiators for heat is preferable from the standpoint of comfort.

Throughout this year the division has disseminated information on preventive medicine, by means of the weekly *Notes on Preventive Medicine for Medical Officers, United States Navy*. Reports from officers in the field showing their activities and the results obtained have been published as well as original reports directed toward the timely application of preventive measures to avert or ease of threatened outbreaks of disease. Apprehending the possibility of epidemics of influenza, this disease was discussed in *Bulletin of the Surgeon General* of August 9, 1918. Realizing the possibility that typhus and cholera might be introduced on board transports and into the United States by returning troops, these diseases were also discussed in some detail; likewise yellow fever, in view of epidemics in South America and the possibility of outbreaks in the West Indies.

The weekly bulletins were so planned that the completed volumes contain information on practically all subjects of preventive medicine which medical officers of the Navy are interested. Thus articles have appeared on water supplies, sewage disposal, vital statistics, insect control, milk, overcrowding, recognition, and control of important communicable diseases and numerous other items, each of which contains current statistical information on morbidity and mortality for the entire Navy and for ships.

The work of the statistical section has steadily increased during the war and has reached such proportions that on October 1, 1918, at the height of mobilization and at the height of the influenza epidemic, a daily average of 4,500 Form F cards were being received, a total of more than 800,000 individual statistical reports to be compiled and tabulated for the calendar year.

A vast amount of detailed work in compiling the daily, weekly, and monthly tables and special tabulations on communicable and infectious diseases has been handled by a personnel which at no time exceeded 18, viz, 2 statisticians, 5 punching and tabulating-machine operators and 11 clerks.

Without the machine system of tabulating statistics adopted by the division at the beginning of the war it would have been impossible to handle this important work effectively. The machines have made it possible to compile vital statistics for all essential purposes with a small clerical force.

## THE DEATH RATE OF THE NAVY.

During the year 1918 there were 9,307 deaths. Of these 5,938 were due to disease, 1,158 to accidents and injuries, and 2,211 to casualties in action. The death rate for all causes, including casualties in action, was 18.47 per 1,000, and the death rate for disease only was 11.78 per 1,000.

Of the 5,938 deaths from disease 5,027 were due to pneumonia in one form or another as follows:

Lobar pneumonia	6
Broncho-pneumonia	1
Influenzal pneumonia	4,1
Measles pneumonia	1
Total	5,0

If pneumonia in its various forms could have been eliminated as a cause of death, the death rate of the Navy for disease would have been only 1.80 per 1,000.

The extraordinarily high death rate of 11.78 was due to the fatal form of influenza which prevailed during September, October, and November. Excluding influenza as a cause of death, the death rate of the Navy from disease would have been but 3.53 even including all other pneumonias, which, as before mentioned, were unduly prevalent.

An analysis of the death rate for disease by weeks shows the high rates obtained during January, February, and March, averaging 8.20 per 1,000. (See chart No. 1.) This was caused principally by the unusual prevalence of lobar pneumonia and broncho-pneumonia, measles pneumonia, cerebro-spinal fever, and diphtheria. In all probability the high incidence of both lobar pneumonia and broncho-pneumonia may be accounted for by influenza, the presence of which was unrecognized. It is usually possible to account for broncho-pneumonia as seen in the Navy as secondary to some other communicable disease. Nevertheless there were during the first three months of the year a number of deaths from broncho-pneumonia for which no cause could be assigned. It is believed that these were influenza pneumonias. It is also thought that a number of the so-called lobar pneumonias which occurred at that time might be explained in the same way. With the beginning of April, death rates declined week by week and remained low (averaging 2.57 per 1,000) until the second week in September, when the epidemic of influenza began to make its presence felt. The high peak in the death-rate curve was reached during the week ending September 28, 1918, with an annual rate of 94.12 per 1,000, after which it declined rapidly averaging 5.44 from the last of November to the end of the year, an average above what it should have been for that season of the year, and indicating the prolonged effect of the influenza epidemic.

It is of interest to note that the death rates in the Navy for disease only in previous years have not even approximated the rate for 1918 since 1889, or the period of the last great pandemic of influenza when it was 10.80. The nearest approach to either the rates of 1888 or 1918 was in 1894, when it reached the unusually high figure of 7.4. (See chart No. 2.) This chart shows the death rate for all causes from 1850 to 1918 and for disease only from 1887 to 1918. Previous to this time, rates for disease only were not reported and

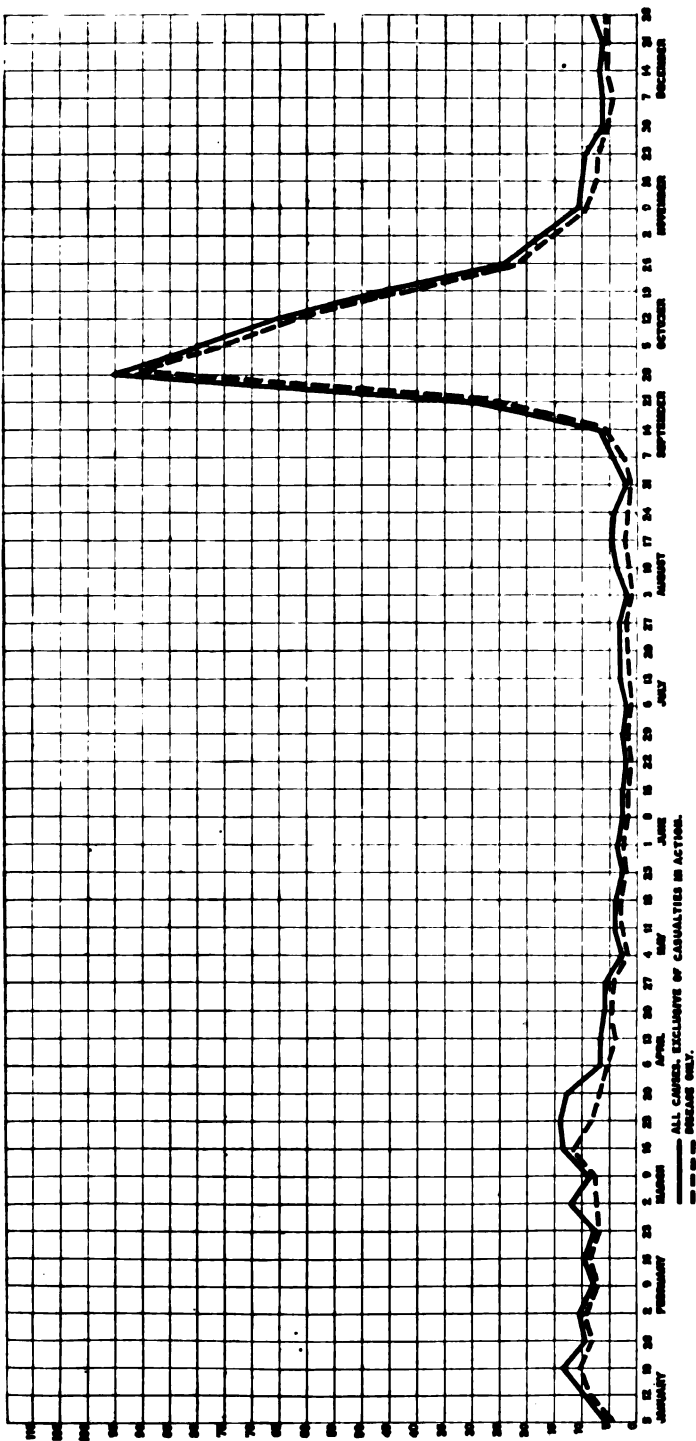
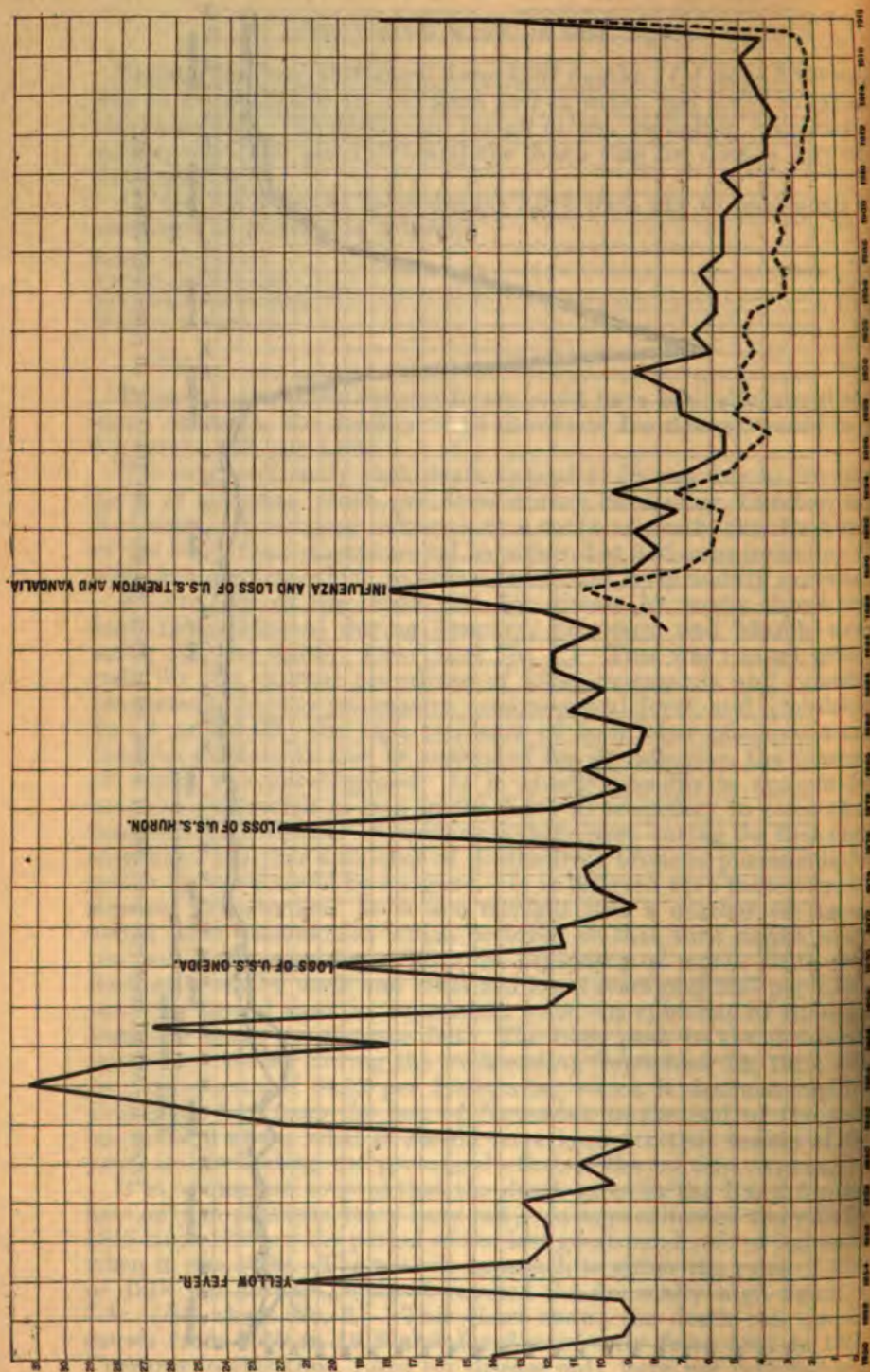


CHART 1.—Annual death rate per 1,000, by weeks, entire Navy, calendar year 1918, for all causes and diseases only.





## U. S. NAVY.

## ANNUAL DEATH RATES AND THEIR COMPONENTS BY YEARS, 1900 TO 1918.

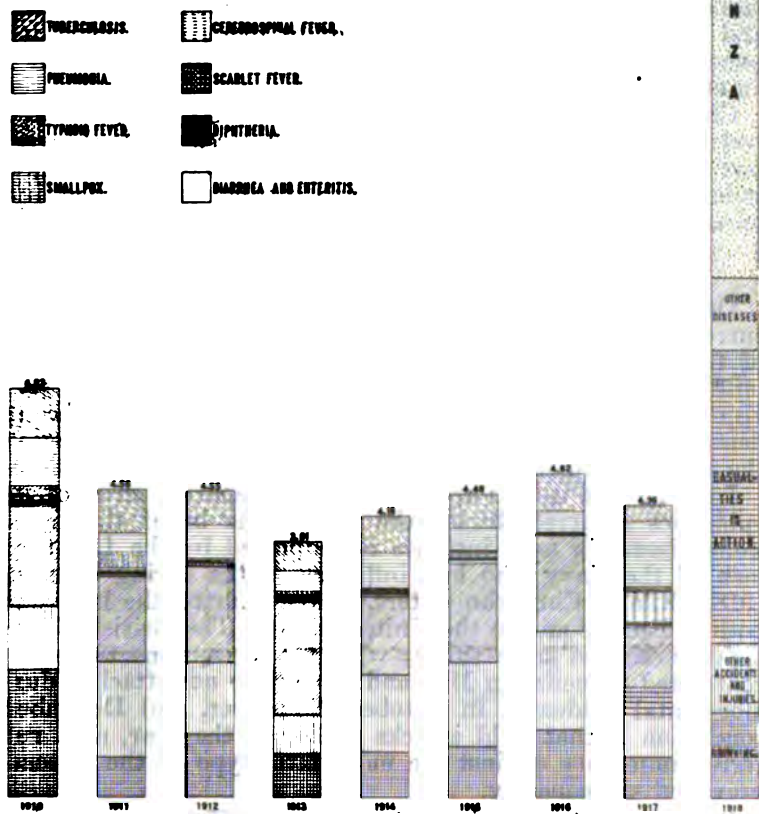


CHART 3.

complements were reported in such a way that it is not possible to calculate those rates.

Death rates and their components, by years from 1909, are shown in chart No. 3.

#### COMMUNICABLE DISEASES.

The more important communicable diseases are separately.

Chart No. 4 shows the admission rate by weeks for communicable diseases, exclusive of influenza and venereal diseases, for the entire Navy and for shore stations during the fiscal year ending June 30, 1919. It will be noted that the rates remain rather constant from week to week throughout the fiscal year. The curve for the first six months of the calendar year 1918, during which ordinary pneumonias, cerebro-spinal fever, measles, diphtheria, and mumps were unduly prevalent, is not shown because rates by weeks are not available for that period. The curve for the first six months of the year 1919 is shown, and it will be seen that even with incidence rates much lower than in 1918 there is nevertheless a slight but consistent rise over the summer and fall. The rise in October is due to mumps and lobar pneumonia, but it is quite likely that some influenza pneumonia was included among these lobar pneumonias in spite of an effort to exclude them.

Chart No. 5 shows annual admission rates by weeks, for mumps, measles, diphtheria, malaria, scarlet fever, cerebro-spinal fever, smallpox, typhoid fever, and pneumonia, shore stations during the calendar year, 1918. Among the pneumonias is included influenza pneumonia.

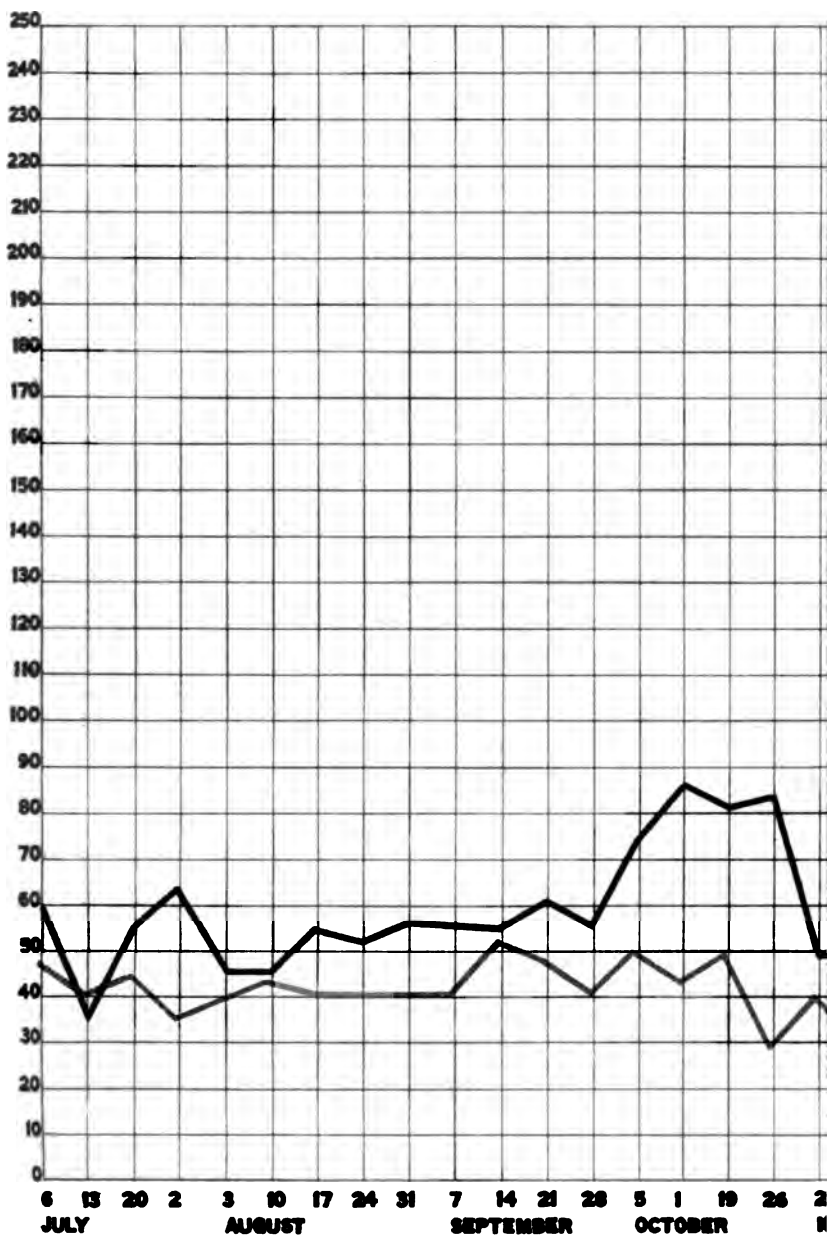
#### INFLUENZA.

During the spring of 1918 extensive epidemics of influenza occurred in England, on the continent of Europe, and in various parts of the United States. At that time the disease was more or less mild in character and there were not enough fatalities to excite real apprehension. Indeed, no indication was given of the unprecedented and frightfully fatal epidemics which were to sweep over the entire world in the autumn when the pandemic culminated.

In retrospect it thus appears that two separate series of influenza epidemics occurred during the year. The belief that it was the same disease in each instance is supported by the fact that many men of the Navy who had influenza in the spring or summer of 1918, while in European waters, escaped during the later epidemics both in Europe and in the United States. The British Grand Fleet experienced the same thing; with few exceptions those men who contracted influenza in May and June were not attacked during the more fatal epidemics in October, November, and December. The conclusion is that mild attacks earlier in the year, as a rule, conferred immunity against the more fatal type of the disease which prevailed subsequently.

In fact, there is good ground for the view that many at least of the sporadic cases diagnosed as grippe during interpandemic years are really influenza and that this disease is quite as much an entity as measles and other well-recognized communicable diseases. This





— SHORE STATIONS.  
 — ENTIRE NAVY.

[illegible]

aps worth mentioning in passing because of the conflict of which has arisen during the past year.

emics of influenza have been occurring periodically for centuries. If the 1918 pandemic is a criterion, they do not appear suddenly but develop gradually, the incidence and prevalence of influenza either in recognizable form or under diagnosis of various febrile diseases, increasing for a year or two in many countries to an extent as to be revealed plainly in annual mortality statistics. Presently, widespread fleeting epidemics of short duration, associated with low case-fatality rates, perhaps, and as a rule bearing no obvious relation to one another at the time, occur in many places several months previous to the appearance of the disease of the type where starting in some part of the world one epidemic follows another, each manifestly related to the one in the country or territory previously visited, spread progressively much after the manner of prairie fires, over the entire inhabited portions of the world but few communities here and there escaping. The rate of increase during the autumn months of 1918 was so rapid indeed as to revive the old discussion as to the possibility of air-borne infection, and the view of the pandemic to date leads to a conviction that the disease can not spread faster than human beings travel.

#### PREVIOUS PANDEMICS OF INFLUENZA.

It is interesting to study the mortality rates for England and Wales where vital statistics are and for ages have been collected and compiled less imperfectly than in other countries. Because of the completeness and accuracy with which deaths have been recorded in registers it is possible to obtain mortality statistics of considerable value as far back as the sixteenth century and quite reliable from early in the eighteenth century. Dr. Otto R. Eichel, of the division of vital statistics, New York State Department of Health, has recently made a study of the influenza mortality in England and Wales from the year 1510, and has plotted this, year by year, in terms of estimated influenza death-rate per million living population, except from 1838 forward, for which period exact rates are available. These data show the great pandemics as having occurred in England at intervals varying from 25 to 175 years apart, the mortality from influenza remaining high for a period of years following each great outbreak and showing a general downward trend to a very low point preceding the next successive great

epidemic. Ordinates, which represent the annual exact or estimated rates, are connected by either free-hand drawing or by the procedure of "averaging," would apparently result in great interepidemic curves of the hyperbolic or parabolic types. From these figures and curves one may infer that a great pandemic of influenza does not consist of a single great wave, covering a course of a few weeks or months and then disappearing, but that the disease, as reflected by the death rates, prevails extensively through a term of years within which there occur two or more years of very high death rates from influenza, or distinct epidemics of the disease.

The history of influenza records a severe epidemic in 1557-58, again in 1657-58, and in 1729. Severe epidemics apparently occurred in four different years between 1729 and 1799—1729, 1733, 1737, and 1743. Another severe epidemic occurred in 1833 and the disease continued in unusual form through 1848. High death rates were again recorded in different years—1833, 1837, 1847, and 1848-49. The next high death rates, during which the pandemic of 1889-90 lasted until 1900 and included high mortality rates from influenza practically every year of the period, but particularly in 1893, 1895, 1898, 1899, and 1900.

From a summary of the course of events presented by Sir Newsholme it appears that no epidemic occurred in 1901. A small epidemic lasting from six to eight weeks occurred. There were no epidemics in 1903, 1904, or 1905. An epidemic of low mortality and somewhat protracted duration occurred in December, 1906, and in January, 1907. In 1908 a smarter epidemic occurred, culminating in the ninth week of the year. A similar epidemic occurred in 1909, reaching its maximum in the twelfth week of the year. No epidemic occurred in 1910, 1911, or 1912. In 1913 an epidemic of low mortality occurred with maximum mortality in the twelfth week of the year. No epidemic occurred in 1914. In 1915 an epidemic similar to that of 1913 reached its height late in February. A considerable increase of mortality was visible in the early part of 1916, followed by a relatively small epidemic, culminating in the late part of the year and terminating early in 1917.

The last great period of influenza began, perhaps, in 1889, culminated in the pandemic of 1918. The great epidemics in Great Britain and Wales came approximately with periods of wide diffusion of the disease throughout all Europe in the early century, and throughout the whole Eastern Hemisphere, and, indeed, throughout the world, in the later centuries, the great epidemics, probably, are the great pandemics.

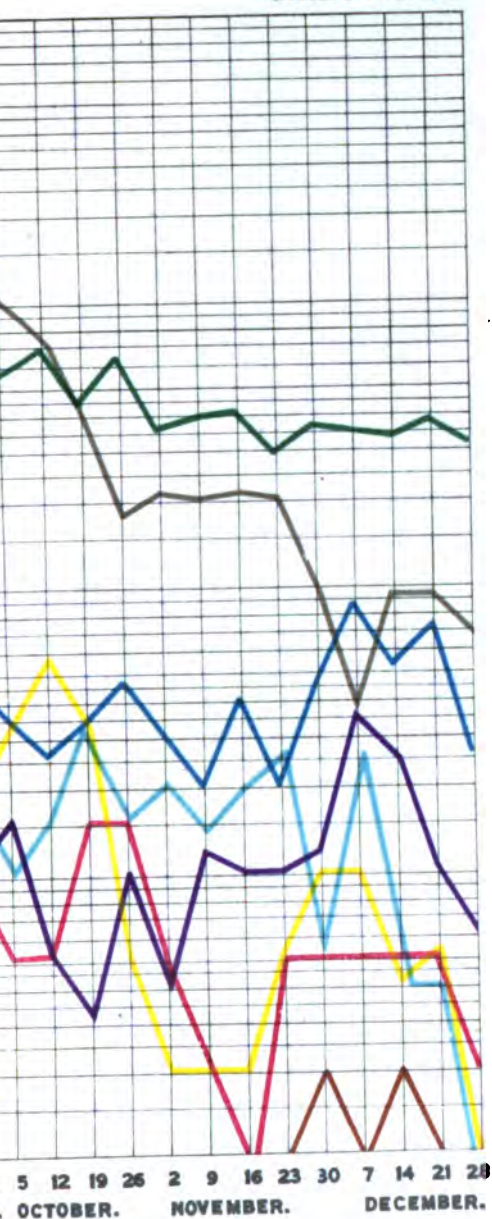
Mortality statistics of the United States furnish but little information relating to the 1847-48 pandemic and even those covering the 1889-90 pandemic are so lacking in completeness for practically all the years that satisfactory comparison can not be made with the statistics of 1918-19. Morbidity statistics relating to the civil population are more complete than fragmentary clinical records, are unobtainable.

Analysis of reports from ships and stations of the Navy and Marine Corps for 1889 and 1890 show that from 20 to 75 per cent of the various elements were attacked. While most of the reports speak of the disease as mild, certain of them mention complicating pneumonia and nephritis, and the disease at the naval station, San Francisco, seems to have been associated with a case fatality rate of 4 per cent, all the deaths being caused by pneumonia.

It is significant that the annual death rate per thousand for pneumonia in the Navy in 1889 was 10.7. In 1887 it was 7.6 and in 1888 it was 9.2. Since 1889 the rate has not reached that figure until the present pandemic.

The annual death rate per 100,000 for pneumonia is also very significant. This rate in 1887 was 62.38; 1888, 70.31; and in 1889, 70.31.

Chart No. 5



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1890, 169.95, and thereafter it did not again reach 100 until when it was 102.20.

#### INFLUENZA IN THE NAVY, 1889-90.

Influenza was not prevalent in the Navy in 1888.

The following summary of influenza during the years 1889-90 is taken from the annual report of the Surgeon General of the Navy for the year 1890:

#### REPORT OF INFLUENZA.

Reported by Passed Assistant Surgeon Frank Anderson, United States Navy.

In response to the circular issued by the Bureau of Medicine and Surgery, for information relative to the recent influenza pandemic, replies have been received from 41 medical officers stationed as follows:

European Squadron	4
Atlantic coast of North America	23
Pacific coast of North America	1
Vessels cruising in the West Indies	3
Atlantic coast of South America	1
Pacific coast of North America	7
Hawaiian Islands	1
China	1

The reports embrace a period extending from the first appearance of the disease in December, 1889, to April 10, 1890, and will be considered in the order indicated above.

#### EUROPEAN SQUADRON.

The *Chicago*, *Boston*, and *Atlanta* arrived at Lisbon, Portugal, on December 22, the *Yorktown* on the 23rd.

Influenza had already been epidemic at this port for some weeks; more than 100 cases had been reported, and the number was daily increasing. The first case observed in the fleet occurred on the *Chicago* on December 23, two days after arrival, in an officer who had been on shore 36 hours previous to being taken sick. Other cases followed each day in persons who had been on shore 24 to 36 hours previous to being taken sick, and it was not until December 28 that a case occurred in a man who had not been out of the ship. The disease made its first appearance on the *Boston* and *Yorktown* on December 28, but broke out upon the *Atlanta* until December 30, nine days after arrival. As to these last three vessels the reports do not state whether the first cases occurring on board were in persons who had been on shore, as was the case with the *Chicago*.

The following table shows the number of men on each ship, the dates of the first and last cases, the time when the epidemic reached its height, the duration of the epidemic on board, and the percentage of persons attacked:

Name of vessel.	Complement.	First case.	Height of epidemic.	Last case.	Duration of epidemic.	Per cent attacked.
	470	Dec. 23	Jan. 2	Jan. 21	Days. 29	60.0
	315	Dec. 28	Jan. 2	Jan. 27	30	27.0
	315	Dec. 30	Jan. 7	Jan. 24	25	27.0
	190	Dec. 28	Jan. 3	Jan. 9	12	26.1

The crews of these vessels are composed chiefly of young and middle-aged men and there is nothing to report as to a particular susceptibility manifested during one period of life. All were subjected to much the same influences; and the sailors, marines, and engineers' force all suffered from the disease, with what smaller percentage of cases perhaps among the firemen and coal

The following symptoms are recorded as prominent in the cases that occurred on these vessels:

(a) *Of the nervous system.* Mental depression, melancholia, utter prostration, and wakefulness. Frontal headache, pain in orbital regions, back, and limbs. Vertigo and tendency to syncope were experienced in some cases.

(b) *Of the respiratory and circulatory organs.* Fever preceded by chill. Temperature, 100.5°-104°. Catarrhal inflammation of respiratory passages in nearly every case. Difficulty in taking deep inspiration. Suffocative feeling. Little or no expectoration. Irregularity of heart beat in one case. Pulse ranging from 105 to 115 (in some cases it reached 120) slowly subsiding to normal and remaining weak for some days.

(c) *Of the digestive organs.* Loss of appetite, furred tongue, foul breath, nausea, occasionally vomiting during the chill. At times diarrhea. The derangement of digestion generally continued several days and was not readily amenable to treatment.

(d) *Of the skin.* Skin generally moist, often profuse perspiration. No eruptions were observed other than herpes labialis in two cases.

The following complications were observed: Pneumonia, pleuritis, and acute rheumatism. Empyema, phlebitis, persistent diarrhea occurred as sequelae in rare instances; but marked debility and bronchial catarrh commonly followed an attack.

Pneumonia occurred in five cases (one lobar) one of them proving fatal. There were 21 cases of relapse of the disease, as follows: *Chicago*, 13; *Boston*, 5; *Atlanta*, 3; *Yorktown*, 2.

Patients recovered quickly as a rule. The acute symptoms passed off rapidly, but patients were apt to remain debilitated for some time. Nine days was the longest time that a man remained on the sick list and one day the shortest, the average time upon the list being 2.8 days. There were of course many cases so mild that the patient did not go upon the list at all. The above figures refer to those who were sick enough to be excused from duty.

The disease did not have a marked influence upon other cases of sickness except in a case of emphysema and chronic bronchitis, in which a fatal termination was brought about.

Out of 486 cases of influenza occurring in the fleet there was but one death, a mortality of about one-fifth of 1 per cent. In this instance croupous pneumonia, involving the entire left lobe, was the cause of death.

*Treatment.*—Antipyrine and quinine were the principal remedies employed. Opium and bromide of potassium were administered when a sedative action was desired. Salicylate of soda was given with marked benefit when rheumatism existed. Stimulants were administered only in complicated cases or where there was unusual debility.

It is the opinion of one medical officer only that the disease was positively contagious. One considers it probably so. Another believes it to be not contagious. The opinion of the fourth medical officer on this question is not expressed.

#### ATLANTIC COAST OF NORTH AMERICA.

From the Atlantic coast of North America reports were received as follows: The table gives the localities taken in order from north to south, and shows the dates of first and last cases observed, and the time when the disease seemed to have reached the maximum of intensity; also the duration of the epidemic in each place.

Locality.	First case.	Maximum.	Last case.	Duration of epidemic.
Portsmouth, N. H.	Dec. 20	Jan. 15	Feb. 15	Dep. 57
Boston.	Dec. 21	Jan. 15	Feb. 27	68
Newport.	Dec. 19	Jan. 15	Feb. 7	40
New York.	Dec. 16	Jan. 1	Jan. 26	41
Philadelphia.	Dec. 16	Jan. 5	Jan. 28	33
Annapolis.	Dec. 25	Jan. 7	Jan. 21	27
Washington.	Dec. 27	Jan. 13	Feb. 14	49
Richmond, Va.	Dec. 11		Feb. 12	32
Norfolk, Va.	Dec. 26	Jan. 15	Feb. 28	64



reports are from various medical officers stationed at the above and on different duty, some referring to navy yards and receiving or ships and some to hospitals. The earliest and latest cases reported are as showing the extreme range of the epidemic in each locality.

Estimates as to the percentage of population attacked necessarily vary and can only be approximate, as the observations in some cases apply to a small number of persons in a ship or barracks and in others to the population in the neighborhood of the station.

At Portsmouth, N. H., 32 per cent of the persons connected with the naval station were attacked. This includes women and children.

At Boston 8 per cent of those living on the receiving ship and 25 per cent of those living on shore and connected with the station suffered from the disease. At Newport 21 per cent of the boys upon the training ship and 20 per cent of the population of the town, including both sexes and all ages, were attacked. At New York 8 per cent of the complement of the training ship and 20 per cent of the marine garrison and officers of the yard, including families, were attacked.

At Philadelphia 33½ per cent is about the average of the various estimates. This applies to all ages and sexes.

At Annapolis, out of 450 officers, cadets, and enlisted men, 56 per cent were attacked. The percentage of sickness among the cadets alone was 75.

At Washington 20 per cent of the marine garrison were attacked, but taking into consideration all persons living in or around or employed in the navy it is estimated that 70 per cent suffered from influenza.

At Richmond, Va., the disease did not become epidemic upon the vessels stationed there, but a few mild cases occurred.

At Norfolk, Va., from 20 per cent to 25 per cent of all ages and sexes were attacked. On the receiving ship 75 per cent of the ship's company were taken sick.

The majority of these observations apply to men in early adult or middle life and therefore do not justify conclusions as to a greater susceptibility at any particular period of life or on the part of one sex more than the other. At the Naval Academy 75 per cent of the cadets were attacked, while at the same time for aged sailors at Philadelphia only 2 cases are recorded among the inmates, which tends to show that early life suffered more than old age. The above series of observations the following symptoms are recorded as prominent:

*Of the nervous system.*—Chill followed by fever; the temperature rarely rose above 103°. Insomnia and mental depression, in one case stupor lasting several days. Cephalalgia, neuralgia of the great nerve trunks, pain in bones and joints.

In exceptional cases, spinal hyperaesthesia on pressure, a peculiar lassitude indicative of collapse centered in the great nervous plexuses including heart and stomach.

*Of the respiratory and circulatory organs.*—Nasal catarrh, with photophobia, epistaxis, bronchitis, diminished heart power, rapid respiration, and cyanosis.

*Of the digestive organs.*—Furred tongue, anorexia, vomiting, constipation, and in commencement of disease, sometimes sudden diarrhoea and evidence of general disturbance of gastro-intestinal canal (so-called abdominal cases).

*Of the skin.*—Hyperaesthesia. General flushing of the skin, followed in some cases by a papular or pustular eruption. Urticaria. Sometimes the skin was usually dry; sometimes there was sweating. Glandular swellings about the neck.

Among the complications of the disease as it appeared on this coast are rheumatism, neuralgia, rheumatism, pneumonia, nephritis, and conjunctivitis. At the Naval Academy several cases of otitis media followed the disease. In one instance pericarditis and in one, severe facial neuralgia. In two cases erysipelas is reported as continuing after the influenza disappeared.

Many cases of pneumonia are reported. From Boston two cases of lobar pneumonia are reported. In Newport pneumonia is reported as having occurred in 3 per cent of the cases. In New York three cases of pneumonia occurred. In Philadelphia two cases of lobar, and in Annapolis two cases of lobar pneumonia occurred. In Washington there were three cases of catarrhal pneumonia and in Norfolk one case.

At New York relapse is reported in 4 per cent of the cases and in Newport in 1 per cent. From Boston there are reported two cases of relapse; one in a man and one in a woman.

from Portsmouth 3, Philadelphia 2, Washington 3, Norfolk 6. At Annapolis there were no relapses.

Convalescence was varied, as follows: Portsmouth, protracted; Boston, slow, with tendency to relapse on exposure to bad weather; Newport, rapid in men and children, slow in women; New York, rapid in the training ship, in other instances tardy, with listlessness, debility, and harassing cough; Philadelphia, acute symptoms passed off rapidly, but debility continued. When throat was involved it was slow. Annapolis, slow; patients long debilitated; Washington, all cases slow and tedious; Richmond, rapid; Norfolk, rapid in uncomplicated cases, slow in others.

The influence of the disease upon other diseases was, as a rule, unfavorable and tended to aggravate them. It increased the liability to attacks and diminished the power to resist. It was observed to render cases of gonorrhea peculiarly obstinate. Death is reported to have been accelerated in phthisis and in a case of hydronephrosis.

Only one death is reported from any of the naval stations along this coast. This occurred at Boston and is attributed to cerebral congestion.

*Treatment.*—Antipyrine and antifebrin were administered when there was not excessive depression and usually relieved pain. Salicylates were employed when rheumatism existed as a complication, and proved satisfactory. Quinine and whisky, were administered when there was much depression. One officer employed only rest in bed with occasional warm baths and little or no medication. This treatment was satisfactory and the cases seemed to do quite as well as where other more active measures were employed.

On this coast only two medical officers were led to regard the disease as contagious. One considers it infectious and the others are of the opinion that influenza is not a contagious disease.

#### GULF COAST OF NORTH AMERICA.

But one report has been received from this region, viz, from the naval station at Pensacola, Fla., under date of March 5. The disease had not as yet been observed there.

#### VESSELS CRUISING IN THE WEST INDIES.

Three vessels cruising in the West Indies report no cases having occurred on board. During the time when the disease was epidemic in the United States these vessels were visiting ports in Haiti, Jamaica, and Cuba. Some cases of influenza were said to have occurred in these islands, but, if they were genuine cases at all, they were few in number and mild in character.

#### ATLANTIC COAST OF SOUTH AMERICA.

The only report from this region is from the steamer *Tallapoosa*, stationed at Montevideo, in Uruguay. The disease appeared on this vessel on February 1; the epidemic reached its height on February 20; and disappeared March 10, having prevailed 38 days. The complement of this vessel numbers 161 all told, and of this number 20 per cent were attacked. The prominent symptoms were neuralgia of the scalp, pain in the back, lumbar region, and along the sciatic nerve. There was marked anorexia. There were no eruptions, but sweating was a well-marked feature of the disease. Obstinate bronchitis was the only complication. There were no cases of pneumonia and no deaths. Quinine and antipyrine were the remedies used. It is the opinion of this medical officer that the disease is not contagious.

#### PACIFIC COAST OF NORTH AMERICA.

Reports from this coast were received as follows: Sitka, Alaska, 1; Mare Island, 4; San Francisco, 1; Oakland, 1.

*Alaska.*—In Alaska the disease did not appear in an epidemic form and no characteristic cases are reported. Nasal, pharyngeal, and bronchial catarrh are said to have been more frequent than usual.

*San Francisco, Oakland, Mare Island.*—Taking these reports collectively the first case occurred on January 1. From that time the disease spread and the epidemic attained its maximum of intensity about January 20. It then gradu-

ned, and by February 10 had subsided, having continued about 40

a force of about 1,600 men at the Mare Island naval station, 15 per cent died from the disease. Four cases of relapse were reported.

Most prominent symptoms were—

*of the Nervous System.*—Pain in lumbar region. Intercostal neuralgia. Trigeminal neuralgia with coryza, often confined to one side; cephalalgia.

*of the respiratory and circulatory system.*—Bronchitis with fever. Temperature first day, 102.5° to 103.5°, dropping to 101° on second day and 100° on the third.

*of the digestive organs.*—Anorexia, coated tongue, constipation.

*of the skin.*—Relaxed skin; perspiration at intervals of several hours, but with slight reduction of temperature. In some cases profuse perspiration upon departure of fever.

Special complications were observed, but there was extreme muscular weakness out of proportion to the gravity of the disease and lasting for weeks.

In 11 cases of influenza, 11 cases of pneumonia occurred, all croupous.

Mortality was 4 per cent, all the deaths being caused by pneumonia.

Treatment.—Aperients, mineral acids, antipyrine, and quinine were the most employed and gave satisfactory results.

The opinion of the medical officers on the Pacific coast that the disease was contagious.

The ship lying at Oakland did not have any cases of influenza on board, but the disease was quite prevalent in the town.

#### HAWAIIAN ISLANDS.

Report from Honolulu states that the disease was still epidemic there as late as April 10, but the time when it first appeared is not stated.

At Canton, China, under same date (Apr. 10) the disease is reported not to have been observed.

#### PREVALENCE OF INFLUENZA IN RECENT YEARS.

Influenza appears to have become unusually prevalent again in the United States at least as early as 1916, when the death rate from influenza in the registration area was 26.4 per 100,000. This was an increase of 65 per cent over the rate for 1915, which was 75 per cent higher than that for 1914.

In 1917 the death rate for influenza was lower again—17.2 per

The rate for influenza, however, does not mean so much as when the disease is not generally recognized, and it is significant that the death rate for all forms of pneumonia in the registration area in 1917 was 149.3 per 100,000, as compared with 137.3 in 1916, the highest rate since 1900. In 1900 the rate was 180.5, which was an influenza year, although the rate for influenza itself was 32.2 in 1901 when it was 32.2.

The report of the registrar general of England and Wales for the year 1916 shows that the numbers of deaths from influenza reported in 1911 were as follows:

	Deaths.
1911	4,334
1912	5,352
1913	6,387
1914	5,953
1915	10,471
1916	8,782

The number of deaths reported in 1915 was nearly double that of the preceding years.

Influenza was epidemic in various parts of Europe throughout the year, and undoubtedly the earlier outbreaks were carried over from the files of The Lancet indicate that a more or less wide-

spread epidemic occurred in England in the spring of 1915. The disease does not appear to have been as prevalent in 1916 as in 1915, but in 1917, among the military forces, cases of so-called "purulent bronchitis" occurred which were fundamentally the same as the rapidly fatal cases of influenzal pneumonia so frequently seen at the height of the pandemic.

An epidemic of purulent bronchitis was reported from a British Army base in northern France in January, 1917, whilst an epidemic of influenza was in progress. This outbreak began in December, 1916. Later, in the spring of 1917, similar cases of purulent bronchitis were treated at Aldershot, England. These cases are noteworthy, because they seem to have been similar in all respects to the fatal types of influenzal pneumonia so commonly seen in all parts of the world during the autumn of 1918. The epidemic referred to was reported by Hammond, Rolland, and Shore in *The Lancet*, July 14, 1917. They remark that although the earlier cases were admitted during December, 1916, it was not until the end of the following January, when exceptional cold prevailed, that the disease assumed epidemic proportions. The disease was very fatal and was the cause of death in 45.5 per cent of 156 consecutive cases coming to necropsy. Clinically, the prominent signs were the characteristic yellow purulent or mucopurulent sputum, tachycardia, and cyanosis. The pathological findings were thick purulent material in the smaller bronchi from which frequently air was excluded; in some cases secondary broncho-pneumonia, edema, and emphysema. The lungs were almost always bulky. The cause of the disease was thought to be the Pfeiffer bacillus because of its almost constant occurrence in the sputum and in the pus in the bronchioles. In some typical cases it occurred apart from the presence of any other microorganism, although more frequently pneumococci or streptococci were associated with it.

Abrahams, Hallows, Eyre, and French in *The Lancet*, September 8, 1917, reported their observations of scores of similar cases in the Aldershot command. Their conclusions were almost identical with those recorded above. Case fatality rates were approximately 50 per cent. Stress was laid upon a peculiar dusky heliotrope type of cyanosis of the face, lips, and ears, as a characteristic sign. They found that whether cultures were made from the sputum itself or from material obtained by lung puncture, or from the blood or organs post mortem, influenza bacilli and pneumococci were constantly found and they conjectured that the disease started as an influenza bacillus infection, terminating in fatal cases as a pneumococcus septicemia, the pneumococcus increasing its virulence by growth in symbiosis with *B. influenzae*.

Because it was taken for granted that *B. influenzae* was without lethal effect upon the lower animals no virulence estimations were attempted. However, two small rabbits were subjected to intrapulmonary inoculations with strains of *B. influenzae* isolated from two mild cases of purulent bronchitis. The first rabbit died 12 hours later because of accidental puncture of a large vessel. The second experiment was successful, the rabbit dying on the fifth day with pleural effusion and lesions in the lungs. The polymorphonuclear leucocytes in the pleural fluid were packed with influenza bacilli and pure cultures of the micro-organisms were recovered from the lung tissues, heart, blood, and spleen.

er, in The Lancet, January 4, 1919, Abrahams, Hallows, and reported in detail, "A further investigation into influenzo-coccal and influenzo-streptococcal septicaemia" as seen during epidemics of influenza in September and October, 1918. concluded, after ample opportunities for broadening and exchanging their views, that the "purulent bronchitis" type is merely many and that the cases seen in 1916 and 1917 represent essentially the same condition as the fatal "influenzal pneumonia" seen at the height of the pandemic, in which, they believed, pneumococcal septicaemia was responsible for most, if not all, fatal cases, it being only a matter of degree whether there was "purulent bronchitis," "capillary bronchitis" or "broncho-pneumonia." highly speaking, among the cases of influenza seen at Aldershot, 9 per cent took an ordinary uncomplicated course and 20 per cent had pulmonary complications in some degree. Eight per cent were moderately severe and 12 per cent of the patients were desperate. For the latter group the case-fatality rate was somewhere between 60 and 80 per cent. As compared with cases seen during the same year they were struck by the relative paucity and even absence of sputum, although in numerous instances typical cases of purulent bronchitis were also seen.

THE 1918 PANDEMIC OF INFLUENZA.

*Epidemics of Influenza in the Navy early in 1918.*—Reports received from time to time from various ships and stations of the Navy showed that outbreaks of influenza began to occur early in 1918, in this country as well as abroad. A suspicious outbreak occurred on the U. S. S. *Minneapolis* at the navy yard, Philadelphia, in January, 1918. There were 21 cases in all and the epidemic subsided in a few weeks.

January, 1918.—Outbreaks were noted as follows:

	Cases.
Dubuque at the navy yard, New York.....	11
Madawaska, Cruiser and Transport Force.....	37
New Jersey, Atlantic coast.....	220
Salem at the navy yard, Boston.....	30
States Naval Radio School, Cambridge, Mass.....	350-400

Other cases of pneumococcus-streptococcus pneumonia were associated with the outbreak at the Harvard Radio School in Cambridge.

In the same month several cases of influenza complicated with streptococcus pneumonia occurred at the navy yard, Portsmouth, N. H., among the crew of the U. S. S. *South Dakota* and other cases of epidemic influenza without complications occurred among the crew of the U. S. S. *Leonidas* at the same yard.

February, 1918—

	Cases.
Frederick at the navy yard, Portsmouth, N. H.....	147
St. Louis at Norfolk, Va.....	73
Charleston at Hampton Roads, Va.....	55
Buffalo at Philadelphia, Pa.....	21

The prevalence of influenza in epidemic form was also reported from the U. S. S. *Georgia* and the U. S. S. *Kansas*, Chesapeake Bay.

## April, 1918.—

U. S. S. *North Carolina* at Norfolk, Va.; 100 cases of mild type.

U. S. S. *Pensacola* at the navy yard, Charleston, S. C.; mild epidemic; cases of short duration.

U. S. S. *May*, base 20, Rochefort, France, 25 per cent of the crew suddenly attacked.

U. S. S. *Oregon* at Mare Island, Cal., approximately 450 men, two-thirds of the ship's company, attacked by influenza.

U. S. S. *Bath*, Hampton Roads, Va.; 38 cases with 1 death.

United States Naval Training Camp, Gulfport, Miss.; mild epidemic but higher percentage of complement attacked than during the subsequent fall epidemic.

Seventh Regiment, United States Marine Corps, Santiago de Cuba; mild epidemic which spread rapidly. Men who were attacked at this time apparently possessed immunity later, during the fall and winter.

United States Submarine Base, San Pedro, Cal.; an epidemic of 10 days' duration following the visit of a Japanese ship on board which the disease was prevalent.

United States Naval Training Camp, San Diego, Cal.; following the visit of a Japanese Squadron an epidemic occurred on the station; 9 per cent of the complement were attacked, 410 cases. Pneumonia complicated in 12 cases.

## May, 1918.—

U. S. S. *Daria*, Queenstown, Ireland (11 per cent of the crew attacked)..... 7

U. S. S. *Texas*, with British Grand Fleet (2 deaths)..... 9

U. S. S. *Birmingham* at Gibraltar (10-day epidemic)..... 78

U. S. S. *Chester* at Plymouth, England (20 per cent of the crew affected)..... 8

U. S. S. *Nashville*, Passage, Gibraltar to Bizerti, Africa (47 per cent of the crew attacked)..... 91

United States Naval Air Station, Dunkirk, France (80 per cent of the complement attacked).....

United States Naval Air Station, Gujan-Mestras, France (40 per cent of the complement attacked)..... 7

Severe epidemics occurred in China in the Yangtze Valley, in the vicinity of Shanghai and in Peking, in May, June, and August. In September, October, and November epidemics prevailed throughout China causing high mortality rates.

## June, 1918.—

U. S. S. *Machias* at Gibraltar (25 per cent of the crew attacked)..... 6

U. S. S. *Brooklyn* at Vladivostok, Siberia (successive epidemics for 8 weeks)..... 12

U. S. S. *Monterey*, Pearl Harbor, Hawaii (66 per cent of the crew attacked)..... 32

U. S. S. *Castine* at Gibraltar (18 per cent of the crew attacked)..... 13

U. S. S. *New York* with British Grand Fleet (10 per cent of the crew attacked, serious pulmonary complications in 8 per cent of the cases, 2 deaths).....

## July, 1918.—

U. S. S. *Tallahassee* at Key West, Fla. (20 per cent of the crew attacked)..... 70

U. S. S. *Dubuque* at navy yard, New York (5 per cent of the crew attacked).....

U. S. S. *Plattsburg*, Atlantic Transport Service (sporadic cases occurred throughout the month).....

U. S. S. *Galatea*, Azores (50 per cent of the crew attacked)..... 90

U. S. S. *Venetia* at Gibraltar (19 per cent of the crew attacked)..... 16

United States Naval Air Station, Wexford, Ireland, epidemic of 2 weeks' duration..... 65

United States Naval Air Station, L'Aberwrach Finlisterre, France..... 69

United States Naval Air Station, Fromentine, Vendée, France (mild epidemic of 2 weeks' duration)..... 32

United States Naval Air Station, Queenstown, Ireland (epidemic began July; cases occurred to November 1)..... 249

United States Naval Air Station, Guipavas, France..... 26

United States Naval Air Station, La Trinité, France (28 per cent of the complement attacked, 2 cases of complicating pneumonia)..... 40

at, 1918.—

ates Naval Air Station, St. Trojan, France (63 per cent of the ment affected at one time, 20 cases of complicating pneumonia, 1 ngitis; 5 deaths)-----	Cases. 215
ates Naval Station, Cristobal, Canal Zone (epidemic of the pan- pe appeared well before progressive spread began in the United	

e navy yard, Mare Island, Cal., the admission rate per  
influenza for the year 1918 was 259.8, as compared with 6.9  
, 1.9 for 1916, and 35.9 for 1917. Excluding the fall epi-  
ne admission rate for 1918 would have been 62.9 per 1,000,  
icates that influenza was undoubtedly on the increase long  
e storm broke in October.

onthly curve for influenza at that station during the year  
ws a higher mark in January than in December, 1917. The  
e sharply to an apex in March, 1918, and then fell abruptly,  
n May it was much lower than in January. It then rose  
rough June, July, and August, reaching the level of January  
tter month. An unaccountable drop occurred in September  
west point reached during the year. This was followed by a  
ous rise in October; then a drop to nearly one-half in No-  
nd a still further drop in December, when the curve again  
he level of January.

sanitary report from United States Navy Yard, Mare Island,  
the month of July, 1918, it was noted that "practically  
of pneumonia developed among detentioners, \* \* \*  
ng those quartered in the barracks (naval training camp  
building)." "All had been treated for influenza or 'colds'  
t of the cases were sent to hospital with a diagnosis of  
or bronchitis and the diagnosis was changed at the hospital  
nionia as the result of later developments." "Most of the  
ia cases were atypical, suggesting the bronchial type, and  
s no case of frank lobar pneumonia."

the month of March, 1918, 1,000 employees of the Ford Motor Co.,  
Mich., were sent home from the factory with influenza. The  
f cases gradually increased from 10 on March 1 to 54 on March  
45 on March 28. From March 28 to April 8, an average of 168  
urred. April 9 a sudden drop to 65 took place and thereafter the  
continued to lessen until May 8, when the number of cases dropped  
ch seemed to be the average number of cases occurring normally at

It was estimated that the number of patients sent home from  
esented about half the total number of cases occurring among em-  
During this spring epidemic the average time lost per patient was

cargo vessels from Europe arrived in Philadelphia early in the sum-  
influenza cases on board. From the British steamship *City of Exc-*  
at Philadelphia June 22 from Liverpool, 27 lascars and an Eng-  
ermaster were removed to hospital desperately ill with pneumonia.  
nships from Norway and another from some Scandinavian port  
New York August 14 and 15 with a number of patients ill with  
The Norwegian liner *Bergensford*, arriving at New York August  
ed a large number of cases resembling influenza during passage. At  
same time a steamship arrived at Newport News with almost the  
w affected. A liner, arriving at New York August 18, reported the  
nt of 21 cases of influenza among passengers and crew during the  
During the month of August a sharp outbreak occurred at Fort  
la.

By the middle of July it was evident from weekly statistics of the Navy and reports from ships and stations, as well as reports from Spain, Austria, Germany, Switzerland, France, Great Britain, Hawaii, and elsewhere, that influenza was again pandemic, but at that time it could not be foretold that epidemics were shortly to occur associated with a type of pneumonia scarcely equalled in intensity of infection by anything except the pneumonic form of plague and causing case-fatality rates for influenza exceeding 4 per cent in many localities.

Late in August the type of cases changed; the disease began to spread progressively from one community to another. The percentage of pulmonary complications increased beyond comparison with regard to the earlier epidemics, and influenzal pneumonia frequently began very early in the disease.

The effect of influenza on the crude death rate of the Navy is strikingly shown in chart No. 1 on page 355 and chart No. 2 on page 356.

In the United States the first cases of this phase of the pandemic were recognized in the receiving ship at Boston, Mass. (Commonwealth Pier). Scattered cases of the same type had appeared among the civilian population of Boston earlier, but the serious nature of the disease was not recognized until after the beginning of the great epidemic.

It is possible that the causative agent of influenza was introduced afresh from European ports among the personnel of the receiving ship, but no particular vessel was recognized as being responsible for the introduction leading to the outbreak in question.

Epidemics of like character occurred almost simultaneously in most parts of the world. In the Canal Zone a rapidly spreading epidemic occurred even before progressive spread began in the United States. The epidemic in China began in the latter part of August. By September 1 serious epidemics were in progress in South Africa, India, and Japan, as well as in many parts of Europe. Influenza of malignant type was apparently introduced into Rio de Janeiro, Brazil, from Spain, September 17, by the ship *Demerara* sailing from Lisbon, Portugal, via Dakar, Africa. The epidemic in Spain had got well ahead in May. In Switzerland the epidemic began suddenly about July 1, and during July 53,698 cases of influenza were reported, as compared with 34 cases for the previous six months. In succeeding months cases were reported as follows: August, 41,626; September, 41,642; October, 263,399; November, 159,422; and December, 104,612.

A comparatively mild epidemic of influenza and pneumonia prevailed in France from April 1 to August 1. About August 22 a violent outbreak began among the French forces in the vicinity of Brest. The comparatively mild earlier epidemic had apparently subsided about August 1, and the French authorities decided to continue the enrollment of the class of 1920. In the latter part of the month the violent epidemic mentioned began and reached its height in September, the pneumonias continuing into October.

It might be concluded that the cases of purulent bronchitis which occurred in northern France and England in 1917 were forerunners of the severe types of influenza which were so numerous during the



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1918. Influenza probably continued in epidemic form in during 1917 and the spring of 1918, when it spread to Spain. In the disease spread more rapidly and more extensively, and July 1 was introduced into Switzerland either from this or directly from France. The more serious epidemic in which began in August, 1918, may have been due to return from Spain or Switzerland or both. At any rate, it is reasonable to suppose that late in August influenza of severe type was brought from French, Spanish, and Portuguese seaports to the Orient, Africa, the United States, and South America.

#### EPIDEMICS OF INFLUENZA IN THE NAVY DURING THE AUTUMN OF 1918.

Epidemic at Commonwealth Pier, the receiving ship at Boston, is said to have begun August 27, 1918, when three cases of influenza were admitted to the sick list, although naturally they were recognized on that day as the beginning of rapidly spreading influenza in the Navy with increasing case-fatality rates. The following day 8 cases occurred, and on August 29, 58 cases, of which 50 were transferred to the United States Naval Hospital, Chelsea, Mass., and cases among the medical staff began to occur in less than 48

hours. Early cases occurring during the outbreaks at naval stations in the first naval district in the vicinity of Boston were characterized by a sudden onset, patients frequently passing within an hour or so from an apparently healthy condition into a state of prostration. At Commonwealth Pier the peak of the epidemic was reached on the eighth day and the major phase was over on the eighth day. Outbreaks followed promptly in practically all naval stations in the first naval district of Boston. No grouping or localization of cases could be traced at any station, nor could any relationship be traced between outbreaks at one station or ship and another. Between the naval station at Harvard University, where an extensive epidemic occurred, and Commonwealth Pier, where the first cases appeared, there was little contact. There was close relationship between Commonwealth Pier and the Boston section base, as well as the naval detachment in Cambridge, in both of which stations completely few cases occurred, while epidemics were in progress at other stations near by.

The training camp on Bumkin Island, well out in the harbor, at which a severe epidemic began September 7, reaching its highest point ten days later and a second high peak September 12, after a decline in the number of new cases September 11. The outbreak continued suddenly September 13 and was practically over by September 16.

The disease appeared in the navy yard, Portsmouth, N. H., in the middle of a few days, where the greatest incidence was in the naval

at the United States Naval Training Station, Newport, R. I., the epidemic began September 10, reached its peak seven days later, and continued on the sixteenth day. The earliest cases among naval personnel in Newport occurred at the training station.

On September 11, 22 cases appeared at the submarine base and 50 at the naval district base, New London, Conn.

At this time, with the exception of the receiving ship, navations in the vicinity of New York City escaped epidemics. For most part, the outbreak at the United States Naval Training Camp, Pelham Bay Park, not beginning until September 24.

Influenza was probably introduced into the navy yard, Philadelphia, Pa., September 7, by a draft of men from Boston, C. developing September 11 among the receiving ship personnel. A draft of several hundred men left the navy yard, Philadelphia, Quebec on September 10 and six cases of influenza developed among them upon arrival at Quebec, September 11.

The outbreak in the receiving ship at Philadelphia was severe. The greatest number of cases occurred on the fifth day, but the epidemic did not begin to subside until the tenth day.

On September 11 epidemics also began at the marine barracks, Quantico, Va.; navy yard, Charleston, S. C.; and at the United States Naval Station, Pensacola, Fla. The epidemic began at Lakes September 12; September 13, at the naval training station, Hampton Roads, Va.; September 16, at the receiving ship and station, Norfolk, Va.; also at Wissahickon Barracks, Cape May.

September 17, the disease was introduced into the navy yard, Puget Sound, Wash., by a draft of 334 men from the navy yard, Philadelphia, Pa., 11 of whom were ill with influenza upon arrival. The disease became epidemic in the city of Seattle and at the training camp in Seattle about September 25.

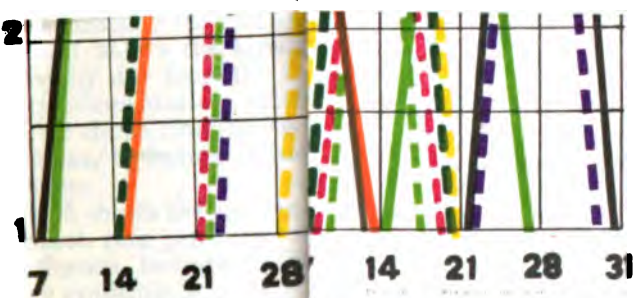
A severe epidemic began at the naval station, New Orleans, September 26. At the naval training camp, Gulfport, Miss., an outbreak occurred September 28, and this also proved to be relatively severe.

As mentioned above, a mild but somewhat extensive epidemic of influenza occurred at the naval training camp, San Diego, Cal., in the spring of 1918. The disease was prevalent all through the month of September, the number of cases from September 1 ranging from 2 or 3 to 10 on September 9. From that day there was a gradual increase to 35 cases on September 18, after which the number of cases per day decreased slightly until September 24 when 33 cases occurred, increasing to 80 new cases September 25 which marked the peak of a relatively mild epidemic. Apparently the course of the epidemic at this station was modified by the presence of men who had passed through the spring epidemic.

Influenza was introduced into the navy yard, Mare Island, Cal., September 25, by a man who became ill on the train returning from leave in Oklahoma. The health officer of San Francisco reported to the naval authorities that six cases had occurred in the city of San Francisco the week ending September 21.

To recapitulate, epidemics began at naval stations in the United States as follows:

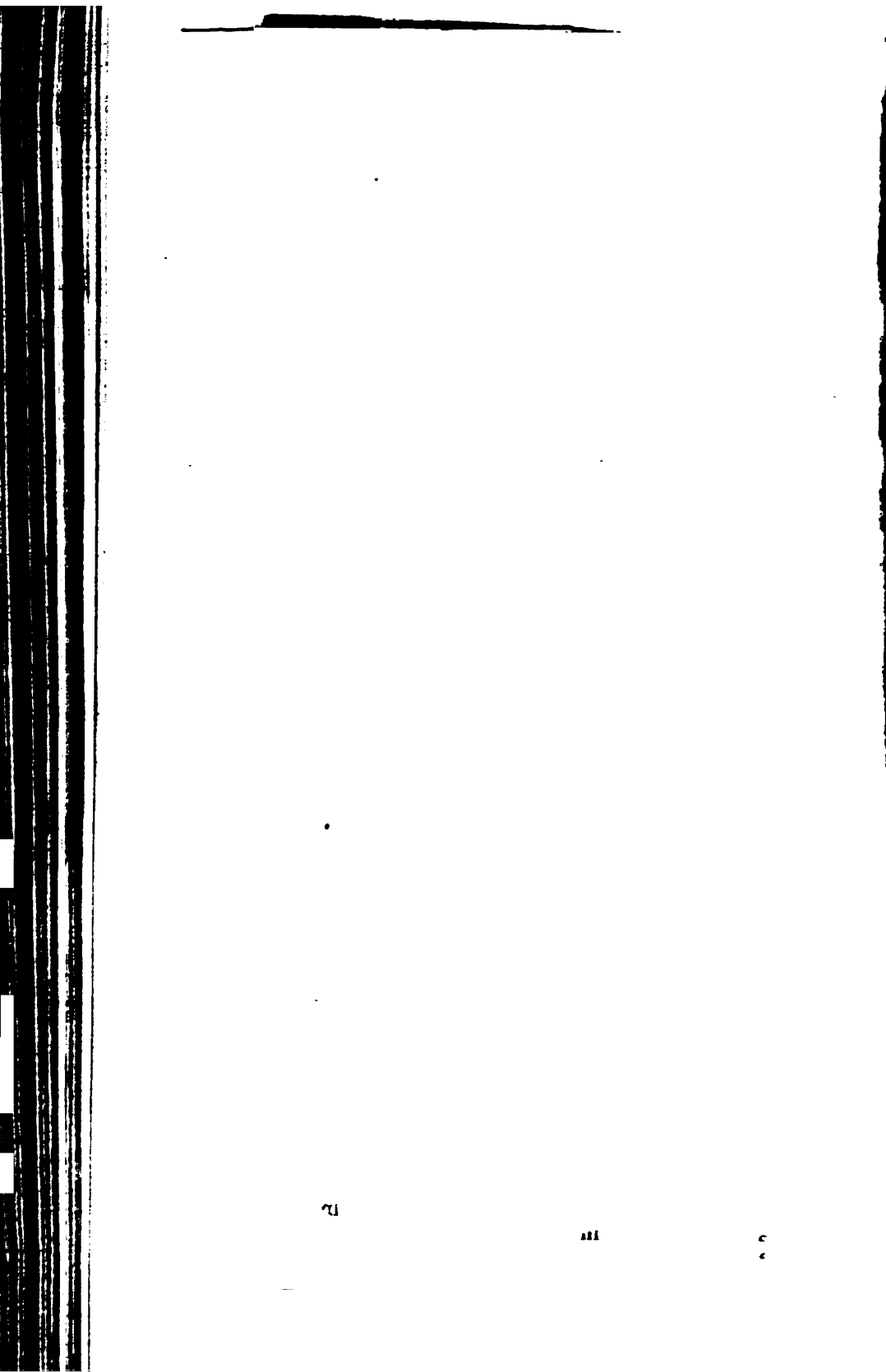
Receiving ship, Boston	-----	A
Harvard Radio School, Cambridge, Mass.	-----	Se
Bumkin Island, Boston, Mass.	-----	Se
Navy yard, Portsmouth, N. H.	-----	Se
Naval training station, Newport, R. I.	-----	Se
Submarine base and naval district base, New London, Conn.	-----	Se
Navy yard, Philadelphia, Pa.	-----	Se
Marine barracks, Quantico, Va.	-----	Se
Navy yard, Charleston, S. C.	-----	Se



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ation, Pensacola, Fla.....	Sept. 11.
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y ship, Norfolk (St. Helena Station).....	Sept. 16.
on barracks, Cape May, N. J.....	Sept. 16.
d, Puget Sound, Wash.....	Sept. 17.
aining camp, Pelham Bay Park, N. Y.....	Sept. 24.
aining camp, Seattle, Wash.....	Sept. 25.
d, Mare Island, Cal.....	Sept. 25.
ation, New Orleans, La.....	Sept. 26.
aining camp, Gulfport, Miss.....	Sept. 28.

General characteristics of the outbreaks at shore stations in the United States in respect to time of onset, duration and comparative incidence are shown in chart No. 6, indicating the incidence per day of complement by days, the curves covering the major epidemic at each station within the period, August 27 to December

Nos. 7 and 8 show annual death rates by weeks, epidemic September 1 to December 31, 1918, influenza (including influenza pneumonia) for each of the 17 stations for which the incidence-incidence rate by days is shown in chart No. 6.

Each station is represented by a color, and the same color is used for each station in both the morbidity curve and the mortality curve. Nos. 9 and 10 show annual death rates (all causes) by weeks during the epidemic period, for certain cities of the United States. These were obtained from the weekly index published by the United States Bureau of the Census. Comparisons may be made between the excess mortality in these cities during the epidemic and the death rate due almost, if not entirely, to influenza.

A striking feature of most of the epidemics at naval stations was the rapidity of onset and the rapidity with which the peak of the epidemic was reached. The character of the onset was frequently similar to outbreaks of scarlet fever and other diseases, in which it was traced to a common source of infection. The peak of the epidemic was usually reached in from 6 to 10 days.

Table No. 1 shows the accumulated percentages of complements of personnel day by day from the first day of the epidemic at each of 17 larger shore stations of the Navy in the United States.

Table No. 2 shows cumulative case fatality rates per 100 of complements of personnel, including influenzal pneumonia, by five-day periods during the epidemic at these stations.

Table No. 3 shows the epidemic influenza attack rate per 1,000, the case death rate per 1,000, and the case-fatality rate per 100, all during the epidemic period, including influenzal pneumonia, for the period of the major epidemic at each of these stations.

Table No. 4 shows the annual death rates, by weeks, during the epidemic period for these stations in Table No. 4.

Table No. 5 shows annual death rates per 1,000 by weeks, for these stations, all forms, exclusive of influenzal pneumonia, for the epidemic period.

Table No. 6 shows the death rate per 1,000 during the 25 weeks, from September 7 to March 1, inclusive, epidemic period in the United States for 42 cities, from influenza and pneumonia (all forms). These were obtained from the States Bureau of the Census figures.

TABLE No. 1.—Cumulative attack rate per 100 of complement by days at 17 stations of the United States Navy.

Name of station, and average complement per week.	First day.	Second day.	Third day.	Fourth day.	Fifth day.	Sixth day.	Seventh day.	Eighth day.	Ninth day.	Tenth day.	Eleventh day.	Twelfth day.	Thirteenth day.	Fourteenth day.	Fifteenth day.	Sixteenth day.	Seventeenth day.	Eighteenth day.	Nineteenth day.	Twentieth day.	Twenty-first day.	Twenty-second day.	Twenty-third day.	Twenty-fourth day.	Twenty-fifth day.	Twenty-sixth day.	Twenty-seventh day.	Twenty-eighth day.	Twenty-ninth day.	Thirtieth day.	
Receiving ship, Boston, 5,137; 4,794; 4,543; 4,585; 3,872; 3,798.	0.15	1.28	2.66	3.85	6.02	8.19	9.86	10.09	10.57	10.84	12.84	14.74	15.33	12.84	29.28	16.99	17.21	17.24	(1)	(1)	15.33	15.33	15.33	15.33	15.33	15.33	15.33	15.33	15.33	15.33	15.33
Training camp, Bunkin Island, Boston, Mass., 973, 966, 922, 945; 1,897; 788.	.20	.71	1.13	1.74	2.15	4.00	14.96	10.13	20.54	24.35	29.28	(1)	(1)	29.28	16.99	17.21	17.24	(1)	(1)	15.33	15.33	15.33	15.33	15.33	15.33	15.33	15.33	15.33	15.33	15.33	15.33
Training station, Newport, R. I., 10,183; 9,228; 9,070; 9,082.	.14	.54	1.78	3.59	5.80	8.88	10.36	11.16	12.78	13.98	16.99	17.21	17.24	16.99	17.21	17.24	17.24	17.24	17.24	17.24	17.24	17.24	17.24	17.24	17.24	17.24	17.24	17.24	17.24	17.24	17.24
Training station, Pelham Bay Park, N. Y., 14,816; 14,521; 14,309; 13,488; 13,558; 13,622.	.01	.16	.51	.88	1.20	1.60	2.19	3.26	3.99	5.33	12.64	15.45	17.09	12.64	12.64	12.64	12.64	12.64	12.64	12.64	12.64	12.64	12.64	12.64	12.64	12.64	12.64	12.64	12.64	12.64	12.64
Receiving ship at Philadelphia, 6,458; 6,411; 6,352; 6,491; 6,260; 5,984.	.09	1.05	2.07	3.46	5.70	7.73	8.98	10.65	12.64	14.20	16.98	17.96	19.21	16.98	9.96	10.28	10.73	10.73	10.73	10.73	10.73	10.73	10.73	10.73	10.73	10.73	10.73	10.73	10.73	10.73	10.73
Training camp (Wissahickon Barracks), Cape May, N. J., 1,700; 1,650; 1,586; 1,491; 1,491.	.33	1.00	1.11	2.79	4.46	6.15	7.93	8.30	8.54	8.66	9.96	10.28	10.73	9.96	10.28	10.73	10.73	10.73	10.73	10.73	10.73	10.73	10.73	10.73	10.73	10.73	10.73	10.73	10.73	10.73	10.73
Marine barracks, Quantico, Va., 10,000; 8,650; 9,150; 7,700; 7,928; 6,790.	.14	.50	1.24	3.05	4.76	6.11	7.90	9.38	9.92	11.79	17.06	25.54	26.70	17.06	25.54	26.70	26.70	26.70	26.70	26.70	26.70	26.70	26.70	26.70	26.70	26.70	26.70	26.70	26.70	26.70	26.70
Training station, Great Lakes, Ill., 45,515; 44,834; 44,901; 44,330; 43,427.	.02	.04	.14	.51	1.06	2.04	3.23	5.85	8.52	10.93	18.65	20.71	21.94	18.65	20.71	21.94	21.94	21.94	21.94	21.94	21.94	21.94	21.94	21.94	21.94	21.94	21.94	21.94	21.94	21.94	21.94
Receiving ship, including St. Helena, Norfolk, Va., 8,256; 8,039; 7,797.	.04	.15	.29	.76	1.18	1.93	2.51	3.23	4.91	6.35	10.21	11.97	12.58	10.21	11.97	12.58	12.58	12.58	12.58	12.58	12.58	12.58	12.58	12.58	12.58	12.58	12.58	12.58	12.58	12.58	12.58
Training station, Hampton Roads, Va., 10,929; 10,868; 11,517; 11,404; 10,821.	.03	.10	.22	.92	1.48	2.26	3.61	4.78	5.74	7.14	17.12	23.41	27.53	17.12	23.41	27.53	27.53	27.53	27.53	27.53	27.53	27.53	27.53	27.53	27.53	27.53	27.53	27.53	27.53	27.53	27.53
Training camp, Charleston, S. C., 4,036; 3,660; 3,577; 4,147; 4,598; 4,229.	.42	.91	1.32	2.02	2.58	2.93	3.36	3.78	4.02	4.32	5.92	7.46	8.22	5.92	7.46	8.22	8.22	8.22	8.22	8.22	8.22	8.22	8.22	8.22	8.22	8.22	8.22	8.22	8.22	8.22	8.22
Training camp, Seattle, Wash., 4,248; 4,128; 4,100; 4,036; 4,073.	2.37	3.27	5.88	8.35	11.09	12.54	13.86	14.55	15.25	16.01	17.90	19.03	19.77	17.90	19.03	19.77	19.77	19.77	19.77	19.77	19.77	19.77	19.77	19.77	19.77	19.77	19.77	19.77	19.77	19.77	19.77
Training camp, Gulfport, Miss., 1,747; 1,634; 1,725; 2,033; 1,901.	1.31	2.07	3.63	6.35	8.55	11.20	15.94	18.94	24.63	29.98	45.07	48.19	43.42	45.07	48.19	43.42	43.42	43.42	43.42	43.42	43.42	43.42	43.42	43.42	43.42	43.42	43.42	43.42	43.42	43.42	43.42
Training camp, San Diego, Cal., 5,025; 5,252; 4,988; 4,989.	.08	.07	.17	.21	.25	.33	.41	.45	.64	.74	1.82	4.94	8.57	1.82	4.94	8.57	8.57	8.57	8.57	8.57	8.57	8.57	8.57	8.57	8.57	8.57	8.57	8.57	8.57	8.57	8.57
Training station, Puget Sound, Wash., 6,026; 6,483; 6,360; 6,917; 6,380.	.04	.24	.36	.76	.96	.90	1.12	1.41	2.06	3.23	7.09	7.89	8.42	7.09	7.89	8.42	8.42	8.42	8.42	8.42	8.42	8.42	8.42	8.42	8.42	8.42	8.42	8.42	8.42	8.42	8.42
Naval station, Pensacola, Fla., 5,047; 5,223; 5,206; 5,359; 5,038; 5,538.	.33	.69	.95	1.26	1.51	1.99	2.58	3.21	3.71	4.11	9.74	18.41	24.37	9.74	18.41	24.37	24.37	24.37	24.37	24.37	24.37	24.37	24.37	24.37	24.37	24.37	24.37	24.37	24.37	24.37	24.37
Training camp, New Orleans, La., 2,350; 2,564; 2,564; 2,514; 2,521; 2,177.	.13	.93	2.88	4.85	7.71	9.91	11.69	13.53	15.06	19.37	32.29	33.09	37.14	32.29	33.09	37.14	37.14	37.14	37.14	37.14	37.14	37.14	37.14	37.14	37.14	37.14	37.14	37.14	37.14	37.14	37.14

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TABLE No. 1.—Cumulative attack rate per 100 of complement by days at 17 stations of the United States Navy.

## No. 2.—Cumulative case-fatality rates per 100 of complement at 15 stations of the United States Navy.

Name of station.	Fifth day.	Tenth day.	Fifteenth day.	Twentieth day.	Twenty-fifth day.	Thirtieth day.
Ship, Boston, Mass.	1.64	2.88	3.75	4.00		
Station, Newport, R. I.	.41	2.10	4.28	5.35		
Tracks, Quantico, Va.	.96	1.86	2.55	3.35	3.78	3.92
Station, Pelham Bay Park, N. Y.	1.24	3.56	4.59	5.01	5.02	5.06
Station, Puget Sound, Wash.	1.56	4.58	7.86	10.17	10.68	10.86
Station, Great Lakes, Ill.	.47	2.77	6.58	8.00	8.60	8.78
Camp (Wissahickon Barracks), May, N. J.	5.45	8.90	9.03	10.12		
Ship at Philadelphia	1.31	3.89	5.23	5.55	5.67	5.69
Camp, Bumkin Island, Mass.	.39	2.73	2.66	2.95		
Camp, Seattle, Wash.	.19	.84	2.55	3.62	3.85	
Camp, Gulfport, Miss.	1.04	1.55	1.85	2.06		
Station, Pensacola, Fla.	.42	.59	.85	1.05		
Camp, Charleston, S. C.	.32	.72	1.81	1.69	1.54	1.46
Camp, New Orleans, La.	.45	.54	1.44	3.70	4.59	4.60
Station, Hampton Roads, Va.	.54	1.89	3.24	4.37		

Name of station.	Thirty-fifth day.	Fortieth day.	Forty-fifth day.	Fiftieth day.	Fifty-fifth day.	Sixtieth day.	Sixty-fifth day.
Tracks, Quantico, Va.	3.84	3.59	3.47	3.72	3.70	3.90	
Camp, Charleston, S. C.	1.66	1.74	1.63	1.57	1.73	1.97	2.12

## No. 3.—Influenza epidemic incidence rates, epidemic death rates, and case-fatality rates at 17 stations of the United States Navy.

Station.	Duration of epidemic in days.	Number of cases of influenza.	Number of deaths.	Epidemic influenza attack rate per 1,000.	Epidemic death rate per 1,000.	Case-fatality rate in influenza, period of epidemic.	Average complement during epidemic.
Tracks, Quantico, Va.	Sept. 9–Nov. 22... 75 days	3,056	117	370.69	14.19	3.82	8,244
Station, Newport, R. I.	Sept. 10–Sept. 24... 15 days	1,449	113	152.63	11.90	7.79	9,493
Station, Pelham Bay Y.	Sept. 23–Oct. 21... 29 days	2,399	145	168.94	10.21	6.04	14,200
Station, Puget Sound,	Sept. 17–Oct. 10... 24 days	568	60	89.16	9.41	10.55	6,370
Station, Great Lakes, Ill.	Sept. 12–Oct. 11... 30 days	9,623	924	215.73	20.71	9.60	44,605
Camp, Wissahickon Bar- acks May, N. J.	Sept. 23–Oct. 4... 12 days	150	14	87.20	8.13	9.33	1,720
Ship at Philadelphia	Sept. 11–Oct. 9... 29 days	1,246	78	193.96	12.12	6.26	6,434
Camp, Bumkin Island, Mass.	Sept. 7–Sept. 15... 9 days	251	11	260.37	11.41	4.38	964
Camp, Seattle, Wash.	Sept. 25–Oct. 8... 15 days	724	34	174.12	8.17	4.69	4,158
Station, Pensacola, Fla.	Sept. 15–Oct. 15... 31 days	1,393	24	257.10	4.42	1.72	5,418
Camp, New Orleans, La.	Sept. 26–Oct. 24... 29 days	952	33	374.50	12.98	3.46	2,542
Camp, Charleston, S. C.	Sept. 11–Nov. 16... 67 days	1,118	26	265.89	6.23	2.23	4,167
Ship, Boston	Aug. 28–Oct. 1... 35 days	804	52	180.46	11.67	6.46	4,454
Camp, San Diego, Cal.	Sept. 8–Sept. 30... 23 days	628	19	127.34	3.85	3.02	4,932
Station, Hampton Va.	Sept. 15–Oct. 9... 25 days	3,005	175	270.62	15.76	5.82	11,104
Ship, including St. Norfolk, Va.	Sept. 16–Oct. 6... 21 days	991	69	123.96	8.63	6.96	7,994
Camp, Gulfport, Miss.	Sept. 28–Oct. 24... 27 days	822	18	463.88	10.15	2.18	1,772
all rates—all stations		29,179	1,912	205.23	13.44	6.56	142,171

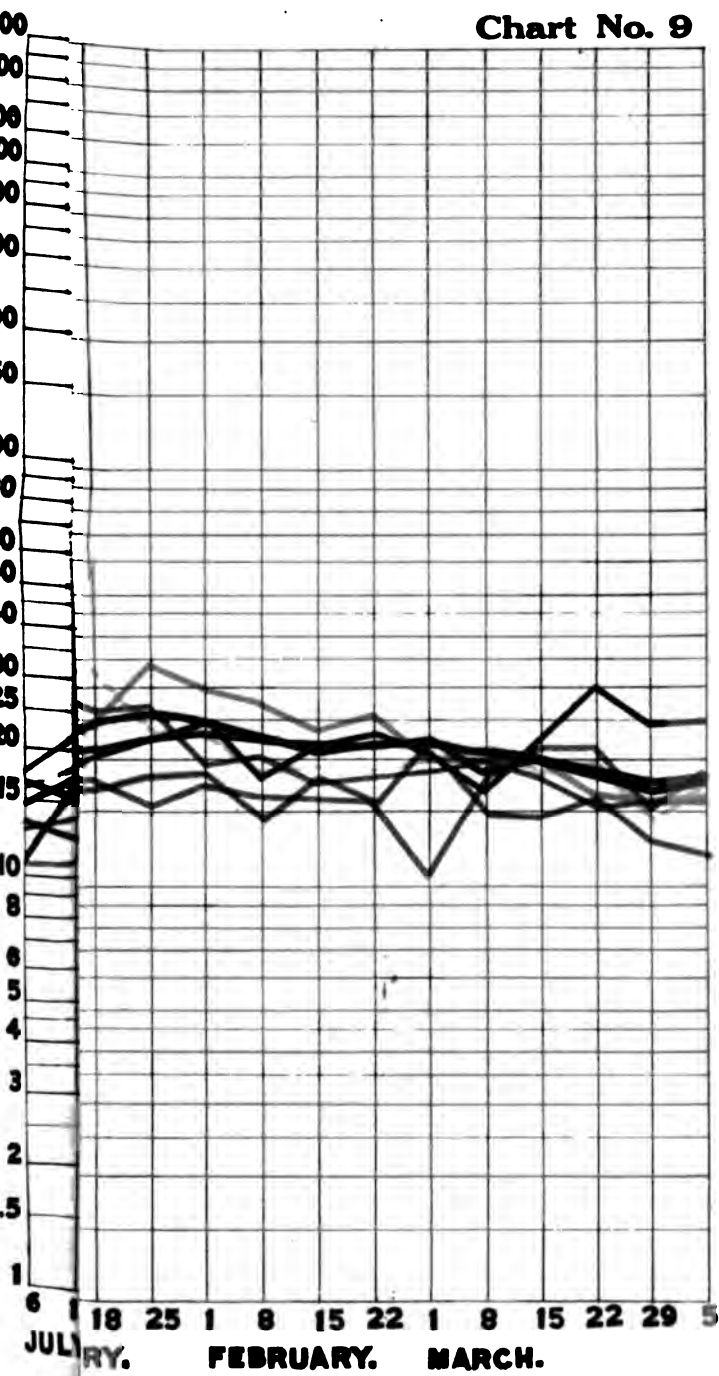
TABLE No. 4.—Annual death rates per 1,000, by weeks, influenza (including *fluential pneumonia*), Sept. 1 to Dec. 31, 1918, inclusive, for 17 of the lar stations of the Navy in the United States.

Week.	Training camp, Pelham Bay Park, N. Y.		Training station, Great Lakes, Ill.		Training camp, San Diego, Cal.		Training camp, Charleston, S. C.		Training station, Hampton Roads, Va.		Training station, Norfolk,	
	Deaths.	Rate.	Deaths.	Rate.	Deaths.	Rate.	Deaths.	Rate.	Deaths.	Rate.	Deaths.	Rate.
Sept. 7.												
Sept. 14.												
Sept. 21.	1	3.43	1	1.09	1	10.92	1	13.00				
Sept. 28.			499	566.28			5	66.56	19	86.84	8	51.11
Oct. 5.	13	46.28	197	230.88	1	10.40	2	24.96	66	312.00	37	243.11
Oct. 12.	64	232.44	58	69.16			2	23.92	47	227.24	18	118.89
Oct. 19.	31	117.52	18	21.32	2	20.80	4	48.88	23	107.64	2	12.44
Oct. 26.	10	37.96	15	18.20			3	35.88	3	13.52	1	6.76
Nov. 2.	3	12.48	9	11.44	1	10.40	1	11.44	4	19.24	1	6.76
Nov. 9.	2	8.84	5	6.76	2	20.80	3	36.40	4	19.76	1	6.76
Nov. 16.	1	4.73	9	13.00	5	56.68	3	36.40	1	4.88		
Nov. 23.			6	8.84	1	12.48	1	11.96				
Nov. 30.			2	3.22	2	24.96						
Dec. 7.			3	4.94	2	26.00			1	3.79		
Dec. 14.	2	6.76	5	7.80	2	26.52	1	16.12	5	18.72	1	7.28
Dec. 21.	4	11.44	4	6.24					2	7.28		
Dec. 28.	10	32.76	3	4.78								
Dec. 29-31.	4	32.94	3	11.59								
Total....	145	31.56	924	72.12	19	12.69	26	20.25	175	44.94	69	27.11

Week.	Training camp, Puget Sound, Wash.		Training camp, Cape May, N. J.		Receiving ship, Philadelphia.		Training camp, Bunkin Island, Mass.		Training camp, Guilford, Miss.		Training camp, Seattle, Wash.	
	Deaths.	Rate.	Deaths.	Rate.	Deaths.	Rate.	Deaths.	Rate.	Deaths.	Rate.	Deaths.	Rate.
Sept. 7.												
Sept. 14.					1	7.80	1	52.00				
Sept. 21.					14	113.36	6	338.00				
Sept. 28.	7	55.64	6	174.20	29	237.12	1	57.20	1	29.64	2	24.44
Oct. 5.	24	195.52	7	220.48	12	95.68	1	27.04			3	37.64
Oct. 12.	20	157.04	1	33.80	13	107.64			2	63.96	20	253.11
Oct. 19.	5	40.56			5	43.16			13	392.08	3	37.64
Oct. 26.	1	7.80							2	50.96	2	25.48
Nov. 2.	1	8.32					1	52.52			3	38.48
Nov. 9.												
Nov. 16.												
Nov. 23.	2	18.20			1	7.28						
Nov. 30.					1	7.28						
Dec. 7.												
Dec. 14.							1	62.40			1	11.44
Dec. 21.												
Dec. 28.					2	21.84						
Dec. 29-31.												
Total....	60	30.90	14	24.30	78	37.26	11	30.27	18	32.46	34	24.46

Chart No. 9





o. 6.—Deaths per 1,000 of population in certain cities of the United States during 25 weeks, from week ended Sept. 14 to Mar. 1, inclusive, influenza and pneumonia (all forms).

City.	Deaths from—		Deaths from influenza and pneumonia (all forms).	
	Influenza.	Pneumonia (all forms).	Number.	Number per 1,000 population.
	84,355	56,659	141,014	
	570	178	748	6.6
	59	795	854	4.2
	1,956	3,006	4,962	7.4
m.	902	278	1,180	6.0
	4,711	1,472	6,183	7.9
	2,172	908	3,075	6.5
	501	197	698	6.3
	7,878	5,298	13,176	5.1
	1,897	366	2,263	5.4
	3,054	1,351	4,405	5.4
	726	212	938	4.2
	527	221	748	5.7
	766	136	902	7.0
ids.	96	248	344	2.5
ls.	174	975	1,149	4.0
	303	671	974	3.1
y, Mo.	1,461	706	2,227	7.1
	2,686	557	3,193	5.6
	150	1,056	1,206	5.0
	174	521	695	6.4
	152	655	807	5.2
	339	1,247	1,586	3.5
	1,009	194	1,203	3.4
	640	254	894	7.5
	1,489	1,086	2,575	6.0
	914	227	1,141	7.4
	2,199	1,114	3,313	8.7
ts	16,449	16,511	31,960	5.8
	975	259	1,234	6.3
	955	178	1,133	6.2
la	8,807	6,759	15,566	8.8
	2,545	3,153	5,698	9.6
	1,091	531	1,622	6.2
	691	304	995	6.2
	1,002	272	1,274	4.8
	2,188	1,425	3,613	4.6
	894	197	1,091	4.2
oo.	3,192	563	3,755	7.9
	833	194	1,027	6.4
	567	318	885	3.4
a, D. C.	2,294	822	3,116	7.8
	941	286	1,227	7.1

rule the intensive period in which the causative agent and primary invaders infected with great virulence was comparatively short in most instances from one to two weeks—after which milder cases apparently less liable to dangerous or fatal complications were observed.

Charts Nos. 11, 12, 13, and 14 show the numbers of cases and number of deaths by days during the primary epidemics at the United States Naval Training Station, Great Lakes, Ill., United States Naval Training Camp, Pelham Bay Park, N. Y., marine barracks, Quantico, Va., and the United States Naval Training Camp, Cape May, N. J. The relation between morbidity and mortality curves varied widely in different stations, as indicated by the charts.

A tendency for sporadic cases to appear daily or frequently for some time after the subsidence of the outbreak was very common in all districts. As in numerous cities of the United States, there was a tendency in many naval stations toward a secondary or recur-



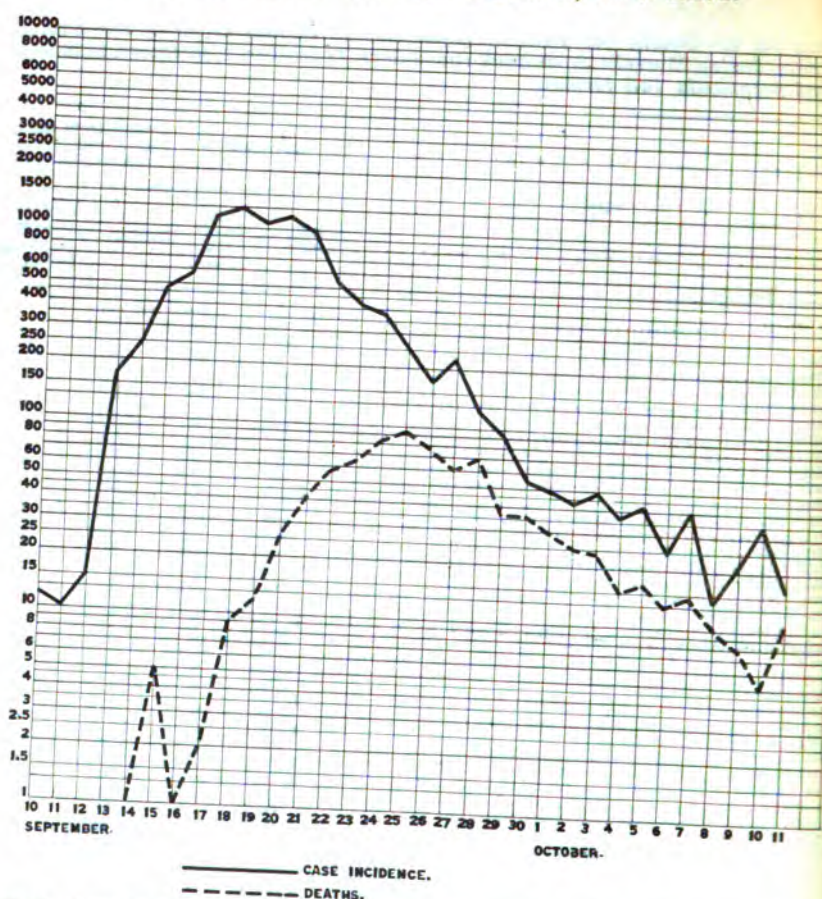


CHART 11.—Logarithmic scale. United States Naval Training Station, Great Lakes, Ill.: Influenza epidemic; case incidence and deaths by days.

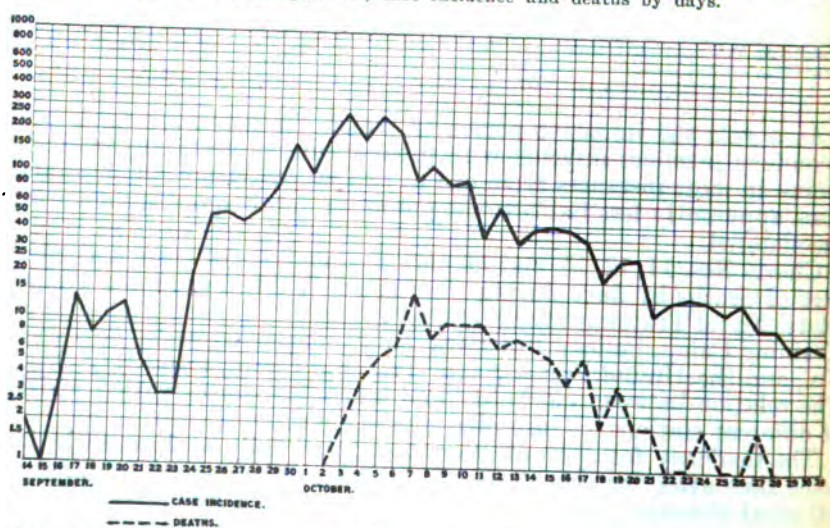


CHART 12.—Logarithmic scale. United States Naval Training Camp, Pelham Bay Park, New York: Influenza epidemic; case incidence and deaths by days.



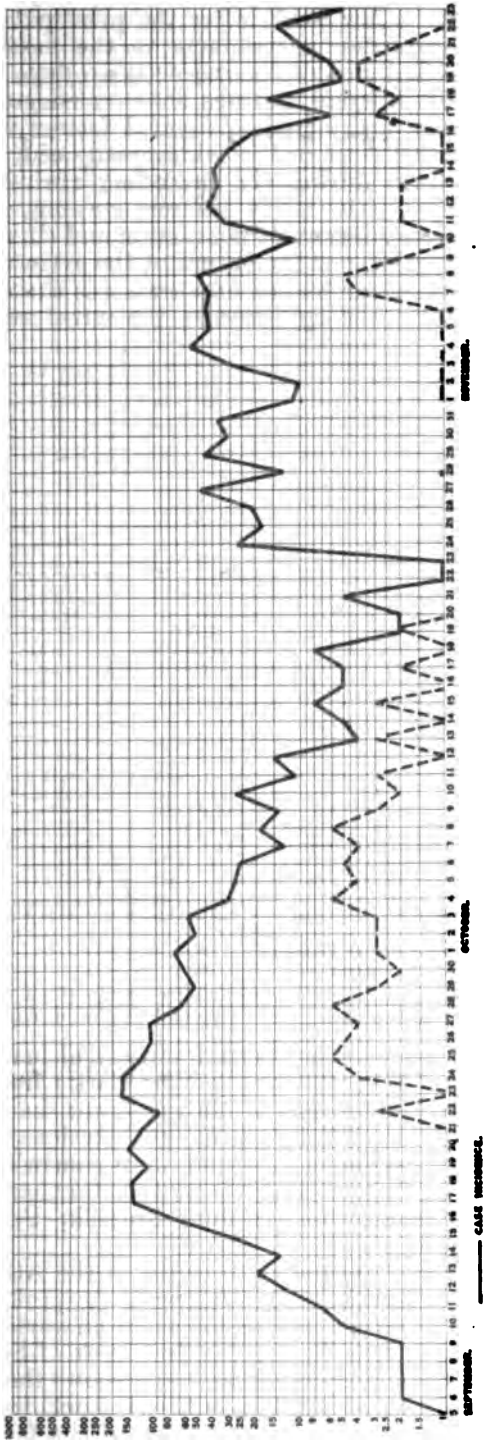


CHART 13.—Logarithmic scale. United States Marine Barracks, Quantico, Va.: Influenza epidemic: case incidence and deaths by days.

rent outbreak within a few weeks after the principal epidemic had passed. In some instances, particularly in the more fulminating types, the epidemic had two peaks two or three days apart. Daily incidence curves for different stations show considerable variation from one another, and many epidemiological factors were operative to account for this; the more or less widespread occurrence of influenza in epidemic form during the preceding spring months, the varied nature of naval activities at different stations, size and character of the complement, density of population and character of housing, geographical location and the nature of the extra-naval environment. That the last factor was of importance is shown by the general similarity between the epidemic in the naval station and the

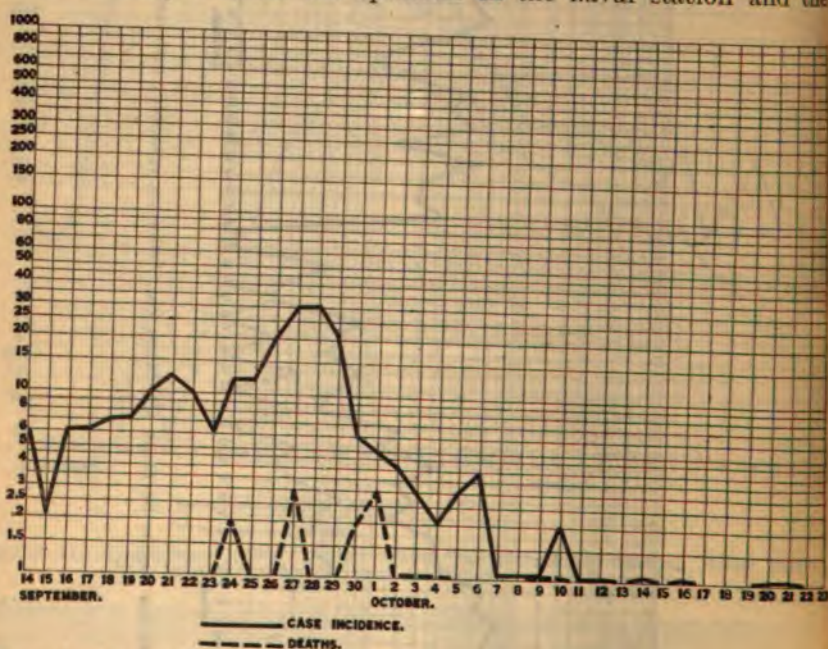


CHART 14.—Logarithmic scale. United States Naval Training Camp, Cape May, N. J.: Influenza epidemic; case incidence and deaths by days.

epidemic in the city constituting its environment, although there were exceptions of course. For example, in New York City the epidemic was delayed in onset and the death rate was lower than in several of the other principal cities. Outbreaks in naval stations in and around Greater New York also came later and were somewhat less severe with regard to attack rates and case-fatality rates than those in stations located in Boston, Philadelphia, Norfolk, Pensacola, New Orleans, and Chicago.

*Epidemics in the fleet.*—Epidemics began in the Atlantic (battle-ship) Fleet about September 15, reaching their peaks in most instances in about 10 days, but outbreaks began on various transports early in September; in five, during the first week of September.

A study of epidemics in ships of the Navy shows that with a very few exceptions the personnel afloat suffered much less during the pandemic than the personnel ashore in spite of the fact that almost all ships of the Navy were much overcrowded and the crews of trans-

were exposed to epidemic conditions incident to outbreaks of influenza in highly virulent form among troops in transit. As a rule, epidemic attack rate on board ship was comparatively low, being 16.3 per cent for battleships, 11.4 for cruisers, 29.4 for gunboats, 26.2 for submarines and destroyers, 8.8 for transports and for miscellaneous vessels.

U. S. S. *Pittsburgh*, an armored cruiser, was an exception. It encountered the disease in its most virulent form at Rio de Janeiro just as it was mounting to the peak of one of the worst of the great epidemics. During the first seven days of the epidemic on board the *Pittsburgh* 48.7 per cent of the crew were attacked and during the whole period of the epidemic including mild cases which were eventually admitted to the sick list, the epidemic attack rate was approximately 80 per cent. This epidemic began October 7, reached its peak six days later with the admission of 211 cases that day, and subsided abruptly, only 4 cases occurring the next day and but 43 in the following month and a half. Six hundred and forty-four cases were admitted to the sick list. Of these, 58 or 8.9 per cent died. The U. S. S. *Yacona* furnished another exception. Of her personnel, 95 in number, 80 or 84 per cent were attacked in the period between November 17 and 29. This was well after epidemics in England had subsided. The *Yacona* encountered the disease in London, Conn.

The relatively low incidence and low epidemic mortality rates for the personnel on board ship are in general agreement with the epidemiological findings in the Navy for the 1889-90 pandemic.

Statistics relating to epidemics of influenza for certain vessels of the Navy are shown in table 7 which contains data collected by the Surgeon, United States Atlantic Fleet.

TABLE 7.—Statistical data relating to epidemics of influenza on board certain vessels of the United States Navy, by classes, during the period Sept. 1 to Oct. 31, 1918.

	Battle-ships (20).	Cruisers (21).	Gunboats (8).	Sub-marine and torpedo destroyers (8).	Trans-ports (25).	Miscel-laneous (1).
Complement.....	32,434	13,926	1,080	1,186	18,686	1,467
Number of cases:						
of total complement.....	232	98	19	12	148	8
of personnel.....	5,076	1,488	299	286	1,357	164
Attack rate.....	16.36	11.4	29.4	26.2	8.05	11.7
Number of deaths.....	239	43	6	9	42	5
Death rate.....	7.3	3.0	5.5	7.9	2.2	3.4
Mortality rate.....	4.3	2.7	1.8	3.0	2.7	2.9
Number of cases complicated with pneumonia.....	405	79	12	24	100	12
Period of duration of epidemic, in days.....	31.0	31.7	25.6	29.6	32.8	28.0
Number of sick days due to influenza pneumonia.....	24,614	7,528	452	1,517	8,218	821
Number of days.....	4.63	4.74	1.42	5.09	5.46	4.77
Number of admissions:						
of medical corps.....	20	5	2	1	9	.....
of hospital corps.....	36	18	7	4	32	.....
Number of days between beginning and height of epidemic.....	9.72	10.42	10.75	10.50	10.64	6.75
Number of medical corps attacked.....	28.16	11.11	33.33	33.33	7.43	.....
Number of hospital corps attacked.....	10.55	10.65	46.66	17.39	4.86	.....
Number of officers attacked exclusive of medical corps.....	21.78	21.27	37.77	17.39	18.99	11.93

A report submitted by the force medical officer, Cruiser and Transport Force, contains data for a few more transports than are included in the above table. The figures are as follows:

	Number of men.	Number of cases of influenza.	Percentage attacked.	Number of deaths.	Epidemic death rate per 1,000.	Case-fatality rate per cent.	Number of cases of complicating pneumonia.	P
Transports:								
Troops.....	129,364	11,885	8.86	738	5.66	6.43	1,040	
Crew.....	23,893	2,123	8.88	42	1.75	1.50	141	

<sup>1</sup> Includes 5,638 marines.

#### INFLUENZA STATISTICS, ENTIRE NAVY.

The following tables contain statistics for the entire Navy:

Table No. 8 shows admissions and annual admission rates per 1,000 of complement by weeks, for influenza, pneumonia (all forms), bronchitis and all these causes combined, for the entire Navy for the whole calendar year 1918.

Table No. 9 shows admissions and annual admission rates per 1,000 of complement by weeks, calendar year, 1918, for influenza, pneumonia (all forms), bronchitis, and these causes combined, for the forces of the United States Navy ashore in the United States.

Table No. 10 shows admissions and annual admission rates per 1,000 of complement by weeks, calendar year, 1918, for influenza, pneumonia (all forms), bronchitis, and these causes combined, for the forces of the United States Navy afloat and expeditionary forces including marines and expeditionary forces of the Navy in Europe. It has not been possible to secure accurate complement figures separately for the forces afloat and the naval or marine corps forces ashore in Europe.

Table No. 11 shows deaths and annual death rates per 1,000 of complement by weeks, calendar year 1918, for influenza (including influenzal pneumonia) and pneumonia (all other forms) for the entire Navy.

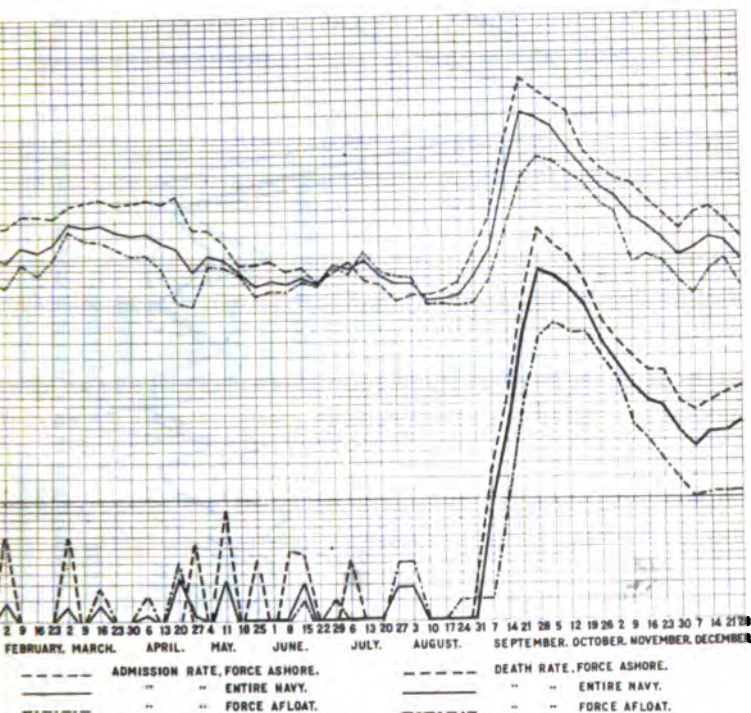
Table No. 12 shows deaths and annual death rates per 1,000 of complement by weeks, calendar year 1918, for influenza (including influenzal pneumonia) and pneumonia (all other forms) for the United States naval forces ashore in the United States.

Table No. 13 shows deaths and annual death rates per 1,000 of complement by weeks, calendar year 1918, for influenza (including influenzal pneumonia) and pneumonia (all other forms) for the United States naval forces afloat and the expeditionary forces of the Navy, including marines, combined. It has not been possible to secure accurate complement figures separately for the forces afloat and naval or Marine Corps forces ashore in Europe.

Chart No. 15 shows the incidence and prevalence of influenza and death rates by weeks in the Navy during the whole calendar year 1918. As indicated, the death rate from influenza (including influenzal pneumonia), expressed in terms of an annual rate per 1,000 of complement, did not rise above 1 in any week until the week ending



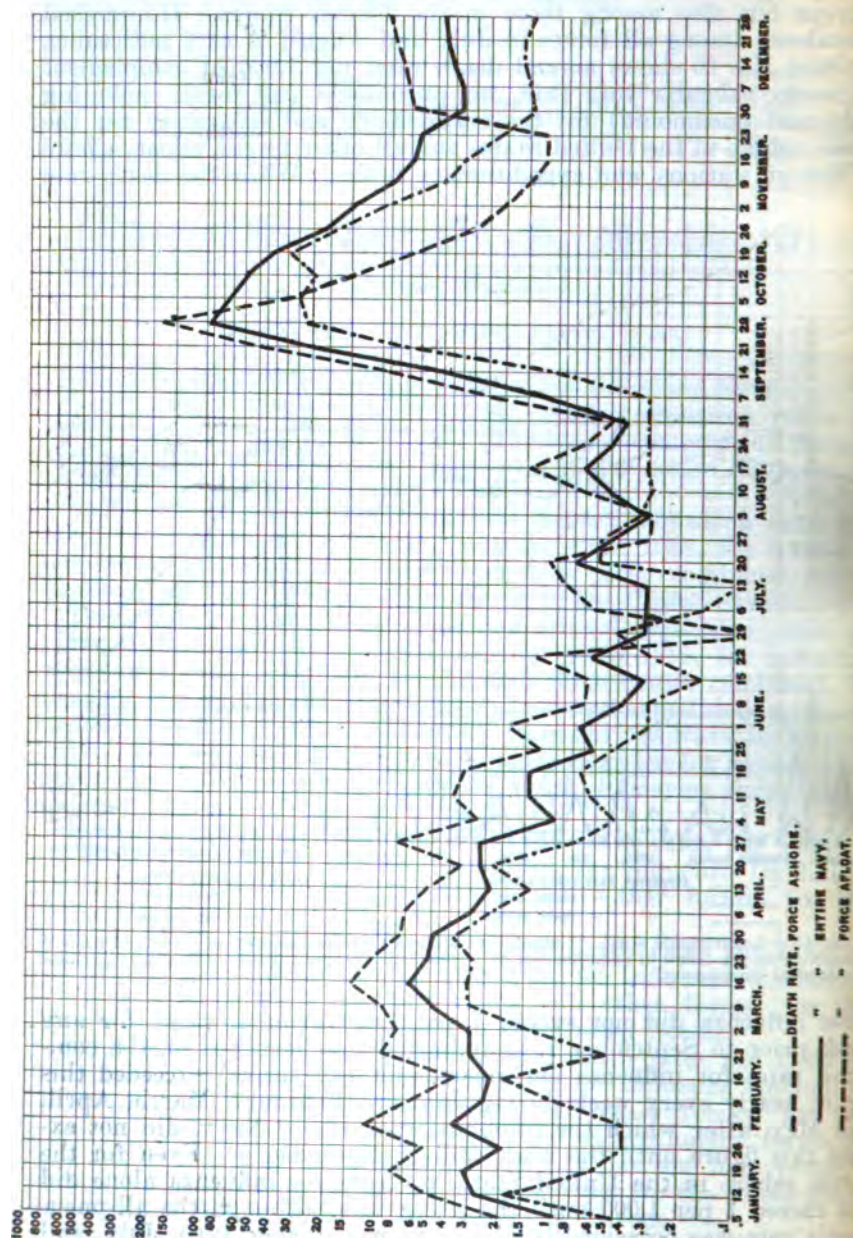
ber 7 when it was 2 for the force ashore. The curves indicating admission rates show clearly the prevalence of influenza in spring months not only among the naval forces afloat and in the United States but also among those in the United States. Diminished incidence among all forces in July and August is very noticeable. Chart No. 16 shows annual death rates per 1,000 of complement by weeks, calendar year 1918, for pneumonia (all forms including lobular pneumonia) for the entire Navy and separately for the forces ashore in the United States and all other forces, afloat, ashore at foreign stations, and expeditionary forces. While the death rate



16.—Logarithmic scale. United States Navy: Annual admission rates and annual death rates per 1,000 of complement, by weeks, calendar year 1918; influenza, including lobular pneumonia.

influenza did not exceed 1 per 1,000 (annual rate) for any force prior to September 1, as indicated by chart No. 15, the comparison for influenza and pneumonia (all forms) exceeded this rate nearly every week during January, February, March, April, May, after which the combined rate, entire Navy, did not exceed this figure until the week ending September 7. Even for the forces ashore in the United States the rate for influenza alone did not exceed 1 per 1,000 until the latter date, although the all-pneumonia rate was occasionally higher than 1 during June, July, and August.

It is very likely that at least some of the deaths from pneumonia were where influenza was not considered in diagnosis during



February, March, and April were primarily due to influenza, and that the outbreaks of this disease which occurred in the winter and spring were by no means so benign as the figures of influenza now obtainable would indicate.

Figure No. 14 shows the distribution of influenza cases and specific admission rates per 1,000 living, according to age groups, enlisted personnel of the Navy, by months, during the period September 1 to December 31, 1918.

Figure No. 15 contains similar data for pneumonia (all forms).

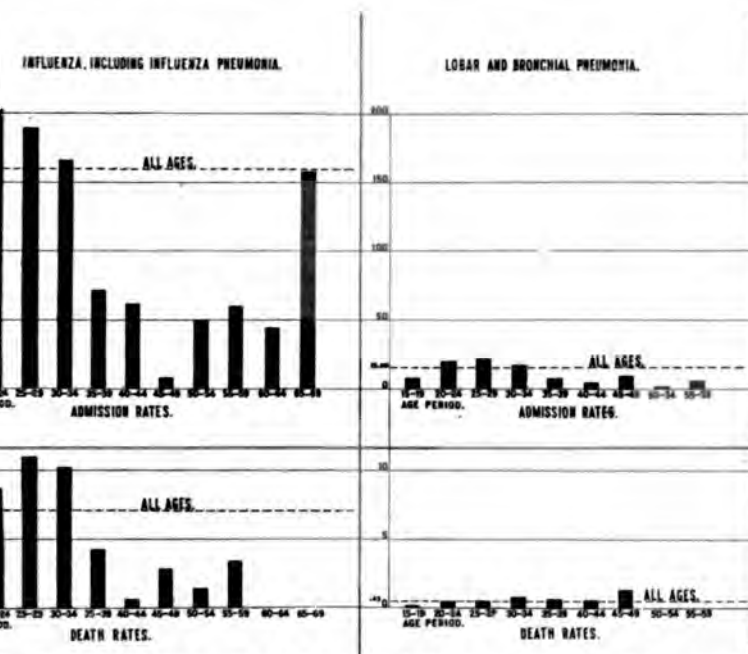


Fig. 14.—Specific admission rates and specific death rates per 1,000 living, for influenza, including influenzal pneumonia, and for pneumonia (all forms other than influenzal pneumonia), according to age groups, enlisted personnel of the Navy, September 1 to December 31, 1918.

Figure No. 16 shows the distribution of deaths from influenza, including influenzal pneumonia, among age groups and specific death rates per 1,000 living, by months, enlisted personnel of the Navy, during the period September 1 to December 31, 1918.

Figure No. 17 shows deaths and specific death rates per 1,000 living, for pneumonia (all forms other than influenzal pneumonia), by months, according to age groups, enlisted personnel of the Navy, during the period September 1 to December 31, 1918.

Figure No. 18 shows case-fatality rates for influenza, including influenzal pneumonia and pneumonia (all other forms), according to months.

Admission rates and death rates for the several age groups, enlisted personnel, period September 1 to December 31, 1918, are shown in Figure No. 17.



TABLE No. 8.—*Entire Navy: Admissions and annual admission rates per 100 by weeks, 1918, influenza, pneumonia (all forms), bronchitis.*

Week.	Comple- ment.	Influenza.		Pneumonia (all forms).		Bronchitis.		Total.	
		Case.	Rate.	Case.	Rate.	Case.	Rate.	Case.	Rate.
Jan. 5...	329,878	502	79.04	105	16.12	276	43.16	883	138.32
Jan. 12...	336,567	634	87.76	159	24.44	356	51.48	1,129	174.74
Jan. 19...	343,256	607	81.52	171	26.00	299	45.24	1,080	163.26
Jan. 26...	349,945	690	100.88	146	21.32	273	40.56	1,099	153.76
Feb. 2...	356,634	648	84.12	135	19.24	312	45.24	1,095	153.60
Feb. 9...	363,323	903	128.96	136	19.24	259	36.92	1,298	185.12
Feb. 16...	370,012	815	114.40	112	15.60	319	44.72	1,246	171.12
Feb. 23...	376,701	968	133.12	123	16.64	232	31.72	1,323	192.48
Mar. 2...	383,390	1,473	199.68	196	26.00	259	34.84	1,928	280.52
Mar. 9...	390,079	1,402	186.68	215	28.60	282	37.44	1,899	282.32
Mar. 16...	396,768	1,465	191.88	211	27.56	231	30.16	1,907	284.72
Mar. 23...	403,457	1,307	167.96	162	20.80	197	24.96	1,666	249.12
Mar. 30...	410,146	1,216	153.92	119	15.08	199	24.96	1,534	194.72
Apr. 6...	416,835	1,290	160.68	138	17.16	207	25.48	1,635	208.32
Apr. 13...	423,524	1,111	136.24	236	28.60	198	23.92	1,545	193.60
Apr. 20...	430,213	1,014	122.20	116	13.52	153	18.20	1,283	154.72
Apr. 27...	436,902	649	76.96	93	10.92	173	20.28	1,015	108.00
May 4...	443,591	917	107.12	83	9.36	158	18.20	1,158	135.12
May 11...	450,280	848	97.76	84	9.36	160	18.20	1,092	125.12
May 18...	456,969	875	76.44	60	6.76	164	18.20	1,099	125.12
May 25...	463,658	531	50.28	54	5.72	166	18.20	751	83.84
June 1...	470,347	583	63.96	47	4.68	130	14.04	760	83.84
June 8...	477,036	549	59.77	49	5.20	124	13.00	722	78.72
June 15...	483,725	640	68.64	35	3.64	140	14.56	815	87.76
June 22...	490,414	575	60.84	36	3.64	143	15.08	754	78.72
June 29...	497,103	816	85.28	32	3.12	174	18.20	1,022	106.00
July 6...	503,792	773	79.56	39	3.64	133	13.52	945	97.92
July 13...	510,481	954	96.72	47	4.68	147	14.56	1,148	118.16
July 20...	517,170	720	72.28	50	4.68	150	15.08	920	92.00
July 27...	523,859	613	60.84	50	4.68	213	20.80	876	86.88
Aug. 3...	530,548	623	60.84	35	3.12	197	19.24	855	83.84
Aug. 10...	537,237	468	45.24	57	5.20	171	16.12	696	67.68
Aug. 17...	543,926	489	46.28	63	5.72	226	21.32	778	74.72
Aug. 24...	550,615	528	49.40	43	3.61	264	24.44	835	78.72
Aug. 31...	557,304	762	70.72	53	4.68	246	22.88	1,061	98.00
Sept. 7...	563,993	1,314	120.64	70	6.24	268	24.44	1,652	151.12
Sept. 14...	570,682	5,568	507.00	153	13.52	358	32.24	6,079	553.36
Sept. 21...	577,371	17,233	1,551.68	1,016	91.00	337	30.16	18,586	1,673.12
Sept. 28...	584,060	16,117	1,434.68	2,112	187.72	529	46.80	18,758	1,699.12
Oct. 5...	590,749	13,800	1,214.72	1,863	163.80	523	45.76	16,186	1,494.72
Oct. 12...	597,438	9,041	786.76	1,090	94.64	434	37.44	10,565	919.12
Oct. 19...	604,127	6,396	550.16	790	67.60	327	28.08	7,513	646.64
Oct. 26...	610,816	4,418	375.96	364	30.68	296	24.96	5,078	432.32
Nov. 2...	617,505	3,809	320.32	299	24.96	296	24.44	4,404	370.72
Nov. 9...	624,205	2,596	215.80	176	14.56	307	25.48	3,079	256.32
Nov. 16...	631,205	2,152	178.88	136	10.92	377	31.20	2,665	221.12
Nov. 23...	638,205	1,709	141.96	158	13.00	352	28.12	2,219	184.16
Nov. 30...	645,205	1,257	104.52	81	6.24	356	29.64	1,694	140.16
Dec. 7...	652,205	1,411	117.52	93	7.28	428	35.36	1,932	160.00
Dec. 14...	659,205	1,734	144.04	147	11.96	503	41.60	2,384	198.72
Dec. 21...	666,205	1,598	133.64	136	10.92	378	31.20	2,112	176.16
Dec. 28...	673,205	1,075	91.00	97	7.80	270	22.36	1,442	121.12
Dec. 29-31...	680,205	428	84.18	35	6.10	86	17.08	549	108.00
Total...	503,792	120,404	238.99	12,306	24.42	13,736	27.26	146,446	290.66



Table No. 9.—United States Navy forces ashore in the United States Admissions and annual admission rates per 1,000 by weeks, 1918, influenza, pneumonia (all forms), bronchitis.

	Complement.	Influenza.		Pneumonia (all forms).		Bronchitis.		Total.	
		Case.	Rate.	Case.	Rate.	Case.	Rate.	Case.	Rate.
	106,983	281	136.24	81	39.00	185	89.44	547	265.72
	112,262	361	166.92	121	55.64	236	109.20	718	382.28
	107,978	339	162.76	130	62.40	196	94.12	665	319.80
	104,858	368	182.00	117	57.72	185	91.52	670	331.76
	105,089	364	179.92	102	50.44	223	110.24	689	340.60
	103,168	450	226.72	99	49.40	179	89.96	728	366.60
	100,716	440	226.72	79	40.56	239	123.24	758	391.04
	102,018	441	224.64	90	45.76	165	83.72	696	354.64
	105,232	560	276.64	144	70.72	189	83.80	873	431.08
	106,648	595	290.16	145	70.72	166	80.60	906	441.48
	111,257	674	314.60	132	61.36	136	63.44	942	439.92
	106,557	591	288.08	99	48.36	128	62.40	818	398.84
	107,821	600	289.12	87	41.60	125	59.80	812	391.56
	110,782	657	307.84	100	46.80	131	61.36	888	416.52
	111,942	616	287.04	196	91.00	115	53.04	927	430.56
	114,400	745	338.52	77	34.84	81	36.40	903	410.28
	118,090	398	175.24	71	31.20	125	54.60	594	261.56
	112,968	377	173.16	51	23.40	84	38.48	512	235.56
	121,246	320	136.76	52	21.84	103	43.68	475	203.32
	122,401	209	88.40	39	16.12	96	40.56	344	146.12
	126,855	216	88.40	33	13.52	102	41.60	351	143.52
	132,434	236	92.56	30	11.44	73	28.60	339	132.60
	139,267	211	78.52	27	9.88	80	29.64	318	118.56
	148,282	240	83.72	16	5.20	100	34.84	356	124.80
	154,248	187	62.92	25	8.32	99	34.28	311	104.52
	159,415	236	76.76	26	8.32	119	38.48	381	123.76
	166,456	295	92.04	28	8.32	82	25.48	405	126.36
	171,215	217	65.52	29	8.32	102	30.68	348	105.56
	175,116	203	59.80	35	9.88	102	30.16	340	100.88
	186,093	157	43.68	32	8.84	149	41.60	338	94.12
	197,643	184	48.36	23	5.72	126	32.76	333	87.36
	206,020	197	49.40	43	10.40	116	29.12	356	89.44
	207,693	206	51.48	50	11.96	159	39.52	415	108.48
	214,019	257	62.40	31	7.28	166	40.04	454	110.24
	216,654	468	112.32	38	8.84	182	43.68	688	164.84
	220,339	869	204.88	44	9.88	188	44.20	1,101	258.48
	234,760	4,458	986.96	117	25.48	248	54.60	4,823	1,068.08
	247,954	14,380	3,015.48	825	172.64	205	42.64	15,410	3,731.28
	255,066	11,851	2,416.96	1,829	370.76	406	82.68	14,086	2,871.44
	254,676	9,776	1,993.68	1,593	325.00	387	78.52	11,756	2,383.68
	255,421	5,757	1,171.56	878	178.36	295	59.80	6,630	1,410.76
	249,392	3,656	761.80	564	117.52	195	40.56	4,415	920.40
	250,831	2,509	520.00	223	45.76	217	44.72	2,949	611.00
	247,020	2,087	438.88	202	42.12	208	43.68	2,497	525.20
	246,313	1,940	409.24	120	24.96	192	40.04	2,252	475.28
	244,974	1,402	298.48	105	21.84	262	55.12	1,769	375.44
	243,385	1,051	224.12	132	28.08	242	51.48	1,425	304.20
	244,296	789	167.44	63	13.00	241	50.96	1,093	232.44
	245,858	1,052	222.04	66	13.52	317	66.56	1,435	303.16
	238,666	1,154	251.16	120	26.00	337	73.32	1,611	351.00
	239,313	913	197.60	101	21.84	239	51.48	1,253	271.44
	228,427	648	147.16	71	16.12	162	36.40	881	200.20
	218,783	269	148.84	23	12.20	51	28.06	343	190.32
Total.	193,818	77,457	399.63	9,584	49.29	9,216	47.54	96,227	496.48

TABLE No. 10.—United States naval forces afloat and expeditionary forces (including marines) combined: Admissions and annual admission rates per 1,000 by weeks, 1918, influenza, pneumonia (all forms), bronchitis.

Week.	Complement.	Influenza.		Pneumonia (all forms).		Bronchitis.		Total.	
		Case.	Rate.	Case.	Rate.	Case.	Rate.	Case.	Rate.
Jan. 5.....	222,805	221	51.48	24	5.20	91	20.80	336	78.00
Jan. 12.....	224,205	273	62.92	38	8.84	100	22.88	411	96.10
Jan. 19.....	235,278	268	58.76	44	9.36	103	22.36	415	96.20
Jan. 26.....	245,087	312	66.04	29	5.72	88	18.20	429	91.00
Feb. 2.....	251,545	284	58.24	33	6.76	89	18.20	406	82.70
Feb. 9.....	260,155	453	90.48	37	7.28	80	15.60	570	113.80
Feb. 16.....	269,296	375	72.28	33	6.24	80	15.08	488	94.10
Feb. 23.....	274,683	527	99.32	33	5.72	67	12.48	627	118.80
Mar. 2.....	278,158	913	170.56	49	8.84	90	16.64	1,052	196.00
Mar. 9.....	283,431	807	147.68	70	13.00	116	20.80	993	182.00
Mar. 16.....	285,511	791	144.04	75	13.52	95	17.16	961	174.72
Mar. 23.....	296,900	716	125.32	63	10.92	69	11.96	848	148.20
Mar. 30.....	302,325	616	105.56	32	5.20	74	12.48	722	125.76
Apr. 6.....	306,053	633	107.12	38	6.24	76	12.48	747	126.80
Apr. 13.....	311,582	495	82.16	40	6.24	83	13.52	618	102.80
Apr. 20.....	315,813	269	44.20	39	6.24	72	11.44	380	62.60
Apr. 27.....	318,812	251	40.56	22	3.12	48	7.80	321	52.00
May 4.....	320,623	540	86.32	32	4.68	74	11.44	646	101.40
May 11.....	324,568	528	85.28	32	4.68	57	8.84	617	97.24
May 18.....	336,803	466	72.28	21	3.12	68	10.40	555	83.60
May 25.....	336,803	315	48.36	21	3.12	64	9.88	400	61.20
June 1.....	337,913	347	53.04	17	2.60	57	8.32	421	64.00
June 8.....	337,769	338	52.00	22	3.12	44	6.76	404	61.80
June 15.....	335,443	400	61.88	19	2.60	40	5.72	459	73.72
June 22.....	338,166	388	59.80	11	1.56	44	6.76	443	68.10
June 29.....	337,688	530	81.12	6	0.88	55	8.32	591	91.60
July 6.....	337,336	478	73.32	11	1.56	51	7.80	540	83.20
July 13.....	339,266	737	112.84	18	2.60	45	6.76	800	122.20
July 20.....	342,054	517	78.52	15	2.08	48	7.28	580	87.60
July 27.....	337,766	456	70.20	18	2.60	64	9.36	538	82.80
Aug. 3.....	332,905	439	68.12	12	1.56	71	10.92	522	81.10
Aug. 10.....	331,217	271	42.12	14	2.08	55	8.32	340	53.00
Aug. 17.....	336,293	283	43.16	13	1.56	67	9.88	363	55.00
Aug. 24.....	336,596	271	41.60	12	1.56	98	15.08	387	59.20
Aug. 31.....	340,650	294	44.72	15	2.08	64	9.36	373	56.80
Sept. 7.....	343,654	445	67.08	26	3.64	80	11.96	551	83.20
Sept. 14.....	335,922	1,110	171.60	36	5.20	110	16.64	1,256	193.80
Sept. 21.....	329,417	2,853	450.32	191	30.16	132	20.80	3,176	501.20
Sept. 28.....	328,994	4,266	673.92	283	44.72	123	19.24	4,672	728.40
Oct. 5.....	336,073	4,024	622.44	270	41.60	136	20.80	4,430	685.20
Oct. 12.....	342,017	3,284	499.20	212	31.72	139	20.80	3,635	532.20
Oct. 19.....	354,735	2,740	401.44	226	32.76	132	19.24	3,098	433.96
Oct. 26.....	359,985	1,909	275.60	141	20.28	79	10.92	2,125	307.52
Nov. 2.....	370,485	1,722	241.28	97	13.52	88	11.96	1,907	287.20
Nov. 9.....	377,892	656	89.96	56	7.28	115	15.60	827	113.10
Nov. 16.....	379,231	750	102.44	41	5.20	115	15.60	906	128.70
Nov. 23.....	380,820	658	89.44	26	3.12	110	14.56	794	108.10
Nov. 30.....	379,909	468	63.96	18	2.08	115	15.60	601	82.10
Dec. 7.....	378,347	359	48.88	27	3.64	111	15.08	497	67.00
Dec. 14.....	385,539	580	78.00	27	3.64	106	22.36	773	104.60
Dec. 21.....	380,687	685	93.08	35	4.68	139	18.72	859	117.60
Dec. 28.....	385,573	427	57.20	16	2.08	108	14.56	551	74.20
Dec. 29-31.	395,217	159	48.80	12	3.66	35	9.76	206	53.40
Total.....	309,974	42,947	138.55	2,752	8.87	4,520	14.60	50,219	162.91

No. 11.—*Entire Navy: Deaths and annual death rates per 1,000 by weeks, 1918, influenza and pneumonia (all forms).*

Week.	Complement.	Influenza.		Pneumonia (all forms).		Total.	
		Deaths.	Rate.	Deaths.	Rate.	Deaths.	Rate.
	235,578			6	0.02	6	0.02
	336,567	1	0.15	18	2.75	19	2.91
	243,256			21	3.17	21	3.17
	249,945			13	1.92	13	1.92
	356,634	1	.14	25	3.64	26	3.74
	263,323			18	2.54	18	2.54
	370,012			17	2.34	17	2.34
	376,701			22	3.01	22	3.01
	383,390	1	.13	22	2.96	23	3.06
	390,079			37	4.88	37	4.88
	396,768	1	.13	50	6.55	51	6.65
	403,457			40	5.14	40	5.14
	410,146			39	4.94	39	4.94
	416,835	1	.11	23	2.96	24	2.96
	423,524			19	2.28	19	2.28
	430,213	2	.23	20	2.39	22	2.65
	436,902	1	.11	22	2.60	23	2.70
	443,591			9	1.04	9	1.04
	450,280	2	.22	11	1.24	13	1.45
	456,969			13	1.45	13	1.45
	463,658	1	.10	5	.52	6	.62
	470,347			7	.72	7	.72
	477,036	1	.10	3	.32	4	.43
	483,725	2	.20	1	.10	3	.32
	490,414			6	.62	6	.62
	497,103	1	.10	2	.20	3	.31
	503,792	1	.09	2	.20	3	.30
	510,481			3	.30	3	.30
	517,170			8	.78	8	.78
	523,859	2	.19	3	.29	5	.49
	530,548	2	.19	1	.09	3	.29
	537,237			5	.48	5	.48
	543,926			8	.72	8	.72
	550,615	1	.09	4	.37	5	.46
	557,304	1	.09	3	.27	4	.36
	563,993	9	.78	4	.36	13	1.19
	570,682	38	3.43	12	1.09	50	4.52
	577,371	266	23.92	14	1.24	280	24.96
	584,060	989	87.88	64	5.20	1,053	93.60
	590,749	802	70.20	43	3.74	845	74.36
	597,438	655	56.68	26	2.23	681	58.76
	604,127	478	41.08	21	1.76	499	42.64
	610,816	248	20.80	13	1.09	261	21.84
	617,505	170	14.08	2	.16	172	14.35
	624,205	102	8.32	2	.16	104	8.63
	631,205	80	6.24	3	.24	83	6.76
	638,205	71	5.72	4	.33	75	6.24
	645,205	43	3.53	1	.08	44	3.64
	652,205	33	2.70	11	.88	44	3.64
	659,205	42	3.48	8	.62	50	4.16
	666,000	44	3.64	10	.83	54	4.52
	673,000	50	4.21	4	.32	54	4.52
	680,000	16	3.17	1	.19	17	3.29
Total.....	503,792	4,158	8.25	749	1.48	4,907	9.73

TABLE No. 12.—United States naval forces ashore in the United States; Deaths and annual death rates per 1,000 by weeks, 1918, influenza and pneumonia (all forms).

Week.	Comple- ment.	Influenza.		Pneumonia (all forms).		Total.	
		Deaths.	Rate.	Deaths.	Rate.	Deaths.	Rate.
Jan. 5.....	106,983			4	1.92	4	1.92
Jan. 12.....	112,262	1	0.46	10	4.62	11	5.04
Jan. 19.....	107,978			18	8.32	18	8.32
Jan. 26.....	104,858			11	5.40	11	5.40
Feb. 2.....	105,089	1	.49	23	10.92	24	11.55
Feb. 9.....	103,188			13	6.24	13	6.24
Feb. 16.....	100,716			7	3.58	7	3.58
Feb. 23.....	102,018			19	9.36	19	9.36
Mar. 2.....	105,232	1	.49	15	7.28	16	7.80
Mar. 9.....	106,648			20	9.36	20	9.36
Mar. 16.....	111,257			31	14.04	31	14.04
Mar. 23.....	106,557			23	10.92	23	10.92
Mar. 30.....	107,821			17	7.80	17	7.80
Apr. 6.....	110,782			16	7.28	16	7.28
Apr. 13.....	111,942			12	5.20	12	5.20
Apr. 20.....	114,400			8	3.58	8	3.58
Apr. 27.....	118,090	1	.43	17	7.28	18	7.80
May 4.....	112,968			6	2.75	6	2.75
May 11.....	121,246	2	.83	7	2.96	9	3.54
May 18.....	122,401			8	3.38	8	3.38
May 25.....	126,855	1	.41	2	.78	3	1.19
June 1.....	132,434			5	1.92	5	1.92
June 8.....	139,267	1	.36	1	.36	2	.72
June 15.....	148,282	1	.35	1	.34	2	.67
June 22.....	154,248			4	1.30	4	1.30
June 29.....	159,415						
July 6.....	166,456	1	.31	1	.31	2	.62
July 13.....	171,215			3	.88	3	.88
July 20.....	175,116			4	1.14	4	1.14
July 27.....	186,063			1	.27	1	.27
Aug. 3.....	197,643			1	.26	1	.26
Aug. 10.....	206,020			3	.72	3	.72
Aug. 17.....	207,693			6	1.45	6	1.45
Aug. 24.....	214,019			3	.72	3	.72
Aug. 31.....	216,654			2	.47	2	.47
Sept. 7.....	220,339	8	1.87	3	.67	11	2.54
Sept. 14.....	234,760	33	6.76	10	2.18	43	9.36
Sept. 21.....	247,954	225	46.80	11	2.08	236	48.49
Sept. 28.....	255,066	841	171.08	39	7.80	880	178.88
Oct. 5.....	254,676	623	126.88	28	5.20	651	132.60
Oct. 12.....	255,421	496	100.88	19	3.84	515	104.32
Oct. 19.....	249,392	313	65.00	19	3.95	332	69.16
Oct. 26.....	250,831	145	29.64	5	.98	150	30.68
Nov. 2.....	247,020	97	20.28	2	.41	99	20.90
Nov. 9.....	246,313	70	14.56	1	.20	71	14.76
Nov. 16.....	244,974	56	11.44	1	.20	57	11.96
Nov. 23.....	243,385	54	11.44	3	.62	57	11.96
Nov. 30.....	244,296	33	6.76			33	6.76
Dec. 7.....	245,858	27	5.20	9	1.87	36	7.28
Dec. 14.....	238,666	33	6.76	5	1.04	38	7.80
Dec. 21.....	239,313	35	7.28	7	1.50	42	8.84
Dec. 28.....	228,427	41	8.84	2	.45	43	9.36
Dec. 29-31.....	218,783	12	6.58			12	6.58
Total.....	193,818	3,152	16.26	496	2.57	3,638	18.77

Table No. 13.—United States naval forces afloat and expeditionary forces (including Marines) combined: Deaths and annual death rates per 1,000 by weeks, 1918, influenza and pneumonia (all forms).

Week.	Complement.	Influenza.		Pneumonia (all forms).		Total.	
		Deaths.	Rate.	Deaths.	Rate.	Deaths.	Rate.
	222,895			2	0.46	2	0.46
	224,305			8	1.82	8	1.82
	235,278			3	.62	3	.62
	245,087			2	.41	2	.41
	251,545			2	.41	2	.41
	260,155			5	.98	5	.98
	266,296			10	1.92	10	1.92
	274,683			3	.52	3	.52
	278,158			7	1.30	7	1.30
	283,431			17	3.06	17	3.06
	285,511	1	0.18	19	3.43	20	3.64
	296,900			17	2.96	17	2.96
	302,325			22	3.74	22	3.74
	306,063	1	.16	7	1.14	8	1.35
	311,582			7	1.14	7	1.14
	315,813	2	.32	12	1.92	14	2.28
	318,812			5	.78	5	.78
	330,623			3	.46	3	.46
	329,034			4	.62	4	.62
	334,568			5	.72	5	.72
	336,803			3	.45	3	.45
	337,913			2	.30	2	.30
	337,769			2	.30	2	.30
	335,443	1	.15			1	.15
	336,166			2	.30	2	.30
	337,688	1	.15	2	.30	3	.45
	337,336			1	.15	1	.15
	339,266						
	342,054			4	.57	4	.57
	337,766	2	.30	2	.30	4	.57
	332,905	2	.31			2	.31
	331,217			2	.31	2	.31
	336,233			2	.30	2	.30
	336,596	1	.15	1	.15	2	.30
	340,650	1	.15	1	.15	2	.30
	343,654	1	.15	1	.15	2	.30
	335,922	5	.72	2	.30	7	1.04
	329,417	41	6.24	3	.47	44	6.76
	328,994	148	22.88	25	3.90	173	27.04
	336,073	179	27.56	15	2.28	194	29.64
	342,017	159	23.92	7	1.04	166	24.96
	354,735	165	23.92	2	.29	167	24.44
	359,985	103	14.56	8	1.14	111	15.60
	370,485	73	9.88			73	9.88
	377,892	32	4.42	1	.13	33	4.52
	379,231	24	3.27	2	.27	26	3.54
	380,820	17	2.28			17	2.28
	379,909	10	1.35	1	.13	11	1.45
	378,347	6	.78	2	.27	8	1.09
	385,539	9	1.19	3	.40	12	1.61
	380,687	9	1.19	3	.40	12	1.61
	385,573	9	1.19	2	.26	11	1.45
	395,217	4	1.22	1	.30	5	1.46
Total	309,974	1,006	3.24	263	.78	1,269	4.09



TABLE No. 14.—United States Navy enlisted personnel: Specific admission rates per 1,000 living, for influenza by months according to age groups, Sept. to Dec. 31, 1918.

Age group.	Com- ple- ment.	September.		October.		November		December.		Total.	
		Admis- sions.	Rate.	Admis- sions.	Rate.	Admis- sions.	Rate.	Admis- sions.	Rate.	Admis- sions.	Rate.
15-19.....	138,666	6,649	47.94	3,973	28.65	906	6.46	746	5.37	12,274	88.48
20-24.....	214,880	22,676	105.52	15,290	71.10	2,873	13.37	2,700	12.56	43,539	20.28
25-29.....	82,574	7,656	92.59	5,907	71.53	1,161	14.06	1,023	12.38	15,747	19.06
30-34.....	24,858	1,859	74.78	1,634	65.73	842	13.75	275	11.06	4,110	16.53
35-39.....	7,700	220	28.57	228	29.61	53	6.88	60	7.79	561	7.28
40-44.....	3,422	84	24.54	81	23.67	25	7.30	25	7.30	215	6.28
45-49.....	1,477	29	19.63	45	30.46	11	7.44	20	13.54	105	7.11
50-54.....	749	15	20.02	13	17.35	3	4.00	7	9.34	38	5.07
55-59.....	287	3	10.45	6	20.90	2	6.96	6	20.90	17	5.93
60-64.....	137	3	21.89	3	21.89					6	4.37
65-69.....	19	3	157.36							3	157.36
70-74.....	21										
75-79.....	10										
Total.....	474,800	39,197	8.41	27,180	57.24	5,376	11.32	4,862	10.24	76,615	16.14

TABLE No. 15.—United States Navy, enlisted personnel: Specific admission rates per 1,000 living, for pneumonia (all forms), by months, according to age groups, Sept. 1 to Dec. 31, 1918.

Age group.	Com- ple- ment.	September.		October.		November		December.		Total.	
		Admis- sions.	Rate.	Admis- sions.	Rate.	Admis- sions.	Rate.	Admis- sions.	Rate.	Admis- sions.	Rate.
15-19.....	138,666	524	3.77	436	3.14	60	0.49	73	0.52	1,102	0.79
20-24.....	214,880	1,952	9.06	1,792	8.33	220	1.02	226	1.05	4,190	1.94
25-29.....	82,574	777	9.40	792	9.59	121	1.46	84	1.01	1,774	2.15
30-34.....	24,858	165	6.63	222	8.98	31	1.24	27	1.08	445	1.79
35-39.....	7,700	22	2.84	28	3.63	8	1.03	4	.51	62	0.81
40-44.....	3,422	11	3.21	3	.87			2	.58	16	0.47
45-49.....	1,477	2	1.35			1	.67			3	0.20
50-54.....	749	1	1.33							1	0.13
55-59.....	287			2	6.96					2	0.69
60-64.....	137										
65-69.....	19										
70-74.....	21										
75-79.....	10										
Total.....	474,800	3,454	7.27	3,275	6.89	450	.94	416	.87	7,596	1.60

TABLE No. 16.—United States Navy, enlisted personnel: Specific death rates per 1,000 living, for influenza, including influenzal pneumonia, by months, according to age groups, Sept. 1 to Dec. 31, 1918.

Age group.	Com- ple- ment.	September.		October.		November.		December.		Total.	
		Deaths.	Rate.	Deaths.	Rate.	Deaths.	Rate.	Deaths.	Rate.	Deaths.	Rate.
15-19.....	138,666	175	1.26	212	1.52	24	0.17	17	0.12	428	0.31
20-24.....	214,880	774	3.60	941	4.37	94	.43	74	.34	1,883	0.87
25-29.....	82,574	336	4.06	472	5.71	59	.71	35	.42	902	1.09
30-34.....	24,858	93	3.74	136	5.47	13	.52	13	.52	255	1.03
35-39.....	7,700	10	1.29	15	1.94	4	.51	4	.51	33	0.43
40-44.....	3,422	3	.87							3	0.09
45-49.....	1,477	2	1.35	2	1.35					4	0.27
50-54.....	749					1	1.33			1	0.13
55-59.....	287			1	3.48					1	0.35
60-64.....	137										
65-69.....	19										
70-74.....	21										
74-79.....	10										
Total.....	474,800	1,393	2.93	1,779	3.77	195	.41	143	.30	3,510	0.74



figures relative to the percentages of cases complicated with pneumonia. For this reason, in many instances, only approximate correct case-fatality rates could be determined for pneumonia.

*Pneumonia as a complication of influenza at various stations.* The percentages of influenza cases complicated by pneumonia case-fatality rates for influenzal pneumonia at various stations shown in the following table. The figures relate to all cases of influenza occurring at each station, including those transferred to hospital.

Station.	Comple- ment.	Percentage of influenza cases complicated by pneu- monia.	Case- fatality rate influen- za pneumo-
Training station, Newport, R. I. ....	9,493	18.0	
Training camp, Pelham Bay Park, N. Y.:			
Primary epidemic, September-October .....	14,220	18.0	
Recurrent epidemic, December .....	14,220	17.5	
Training station, Hampton Roads, Va. ....	11,104	12.2	
Receiving ship, Norfolk, Va. ....	7,994	15.3	
Training camp, Charleston, S. C. ....	4,167	5.6	
Marine barracks, Parris Island, S. C. ....	10,424	21.0	
Training camp, Gulfport, Miss. ....	1,772	11.4	
Training station, Great Lakes, Ill. ....	44,605	18.19	
Navy Yard, Mare Island, Cal. ....	7,657	14.3	
Fifth naval district. ....		13.16	
U. S. S. <i>Pittsburgh</i> .....		11.0	

*Pneumonia as a complication of influenza in hospital cases.*—The percentages of pneumonic complications among influenza cases transferred to hospital and case-fatality rates for pneumonia in such cases varied considerably, as shown in the following table:

Hospital.	Percentage of influenza cases com- plicated by pneumonia.	Case- fatality rate influen- za pneumo-
Naval hospital No. 5, Brest, France:		
Among patients received from organizations in France. ....		
Among patients received from transports. ....		
Naval hospital, Cape May, N. J. ....	55.0	
Naval hospital, Key West, Fla. ....	22.5	
Naval hospital, Norfolk, Va. ....	30.0	
Naval hospital, Pensacola, Fla. ....	8.2	
Naval hospital, Philadelphia, Pa. ....	24.4	
Naval hospital, Portsmouth, N. H. ....	38.2	
Naval hospital, Washington, D. C. ....	27.4	

*Epidemiological study of influenza for an entire naval district.* Influenza statistics vary considerably for the different individual stations within a naval district. The following analysis of data from the third naval district illustrates this:



[Station complements as of Oct. 1, 1918.]

Naval stations, third naval district.	Station complement.	Cases, influenza.	Deaths, influenza and pneumonia.	Case incidence (per cent).	Case-fatality rate (per cent).	Epidemic death rate per 1,000, influenza and pneumonia.
Station, Bayshore, N. Y.	880	97	6	11.02	6.18	6.83
Station, Montauk, N. Y.	270	2	1	.74	50.00	3.70
Station, Rockaway, N. Y.	843	80	6	9.49	7.50	7.11
Station depot, Long Island, N. Y.	385	53	1	13.25	1.88	2.39
Draft detail, New York.	2,750	554	21	20.14	3.80	7.63
Section headquarters, Bath, N. Y.	1,260	310	5	24.60	1.61	3.96
Section headquarters, New Britain, Conn.	436	171	3	39.20	1.75	6.88
Rendezvous, Brooklyn, N. Y.	1,700	172	7	10.11	4.07	4.11
Receiving ship at New York.	5,800	1,049	48	18.08	4.57	8.27
Engine, Caldwell, N. J.	752	165	6	21.86	3.64	7.97
Engine, Peekskill, N. Y.	750	215	7	28.66	3.25	9.33
Training camp, New York.	15,316	2,616	134	17.08	5.12	8.74
Material school, Pelham Bay, N. Y.	1,111	69	4	6.21	5.80	3.60
Granite State, New York.	566	175	2	30.92	1.14	3.53
Totals and averages.	32,819	5,728	249	17.45	4.35	7.58
New York City:						
Age 15-25—Males and females.	1,240,510		3,657			2.94
Age 25-45—Males and females.	1,987,700		9,999			5.03

It is to be noted that low case-fatality rates usually coincide with low case-incidence rates and it might be inferred that some stations reported more mild cases of influenza than others. The large and small stations reported lower case-incidence rates and higher case-fatality rates than the smaller stations. The epidemic death rates at the various stations show greater uniformity.

Outbreaks of influenza presumably occurred simultaneously among civilians and naval personnel in and about greater New York but, whereas the periods of greatest prevalence had passed in some of the naval stations before October 9, the crest of the epidemic in New York City was not reached until October 26. Among those of the naval personnel quartered outside of naval stations or living under conditions which were essentially civilian the incidence followed that of the civil community. This was particularly the case among the personnel of the steam engineering school, Hoboken, N. J., in the yard and among the force attached to district headquarters employed in various offices.

It is not surprising that the epidemic should have run its course at the most congested stations more rapidly than among civilians. The epidemic reached its peak in the receiving ship September 21 and in Park Barracks, October 1. These were the two most congested stations. With regard to preventive measures, quarantine was not used nor was the general use of masks or prophylactic sprays advised. Stations remote from cities were advised to prohibit city entry, but stations in New York were advised by the medical aid to commandant of the district to relieve congested barracks by strictly granting liberty. Special preventive measures, which varied greatly in character, were instituted at different stations upon the initiative of the various medical officers.

At the three air stations gauze masks were worn. It will be noted that the epidemic death rates were moderately high at two of them

and low at the United States Naval Air Station, Montauk. An epidemic of influenza occurred at that station in March, 1918, when 4 cases developed during a period of 12 days among the crew, the numbering 119. However, considerable change in personnel had taken place in the meantime, only 20 of those who were actually attacked in March remaining.

At the receiving ship in New York, in City Park Barracks, at the Federal rendezvous, and at Bath Beach, all of which stations are in New York City, no restrictions were imposed on liberty; masks were not worn and no other personal prophylactic measures were undertaken. At the United States Naval Training Camp, Pelham Bay Park, liberty was restricted and visitors were excluded. This was also the rule on board the *Granite State*.

Some of the vagaries of epidemics become apparent when the case incidence and case-fatality rates of the training camp in Pelham Bay Park are compared with those of the Federal rendezvous. The former, located at the extreme edge of the city limits, had its men billeted in many rooms of moderate size and imposed a modified quarantine. At the latter, all men were quartered in one very large room and no restriction was imposed on liberty. The building is an armory located in a thickly populated section of Brooklyn. Pelham suffered more than the Federal rendezvous or the station at Bath Beach. It is difficult also to explain the differences in rates at Peekskill and Iona Island. These stations are located opposite each other on the Hudson River, 40 miles above New York. The same restrictions were imposed on liberty at both, and presumably each had about the same amount of communication with the city, but they gave respectively the highest and lowest epidemic death rates. One hundred men of the United States Naval Aviation Detail, Keyport, N. J., escaped without a case, although the neighboring city suffered.

*Epidemiological studies among personnel of the Navy Department, Washington, D. C.*—The figures for the personnel on duty at the Navy Department, Washington, D. C., furnish a means of judging the effects of epidemic influenza among adults living under civilian conditions.

Bureau.	Comple- ment.	Number of cases.	Number of deaths.	Case incidence (per cent).	Case- fatality rate.	Death rate per 1,000 epidem-
Ordnance.....	303	37	1	12.2	2.7	3
Construction and Repair.....	608	90	2	14.3	2.22	3
Steam Engineering.....	583	89	2	15.2	2.24	3
Navigation.....	1,351	431	5	31.9	1.16	3
Secretary's office.....	98	11	0	11.2		
Chief clerk's office.....						
Yards and Docks.....	635	128	2	20.1	1.48	3
Compensation Board.....	41	4	0	9.7		
Judge Advocate's office.....	46	7	0	15.2		
Solicitor's office.....	35	5	0	14.2		
General Board.....	13	3	0	23.0		
Supplies and Accounts.....	1,699	388	8	22.8	2.06	4
Medicine and Surgery.....	150	35	0	23.3		
Marine offices (annex and Coreoran Courts). ..	566	78	0	13.8		
Hydrographic offices.....	163	26	1	15.9	3.84	6
Operations (including O. N. I. inspections and survey).....	1,170	243	2	20.8	.082	1
Total.....	7,461	1,575	23	21.0	1.46	3
Washington, D. C.....	1,500,000	25,729	1,658			3

<sup>1</sup> Estimated.

<sup>2</sup> From Sept. 21 to Nov. 15, 1918.

far as the Navy Department was concerned it may be said that epidemic ended about November 4, although sporadic cases continued to occur. The case-incidence rate, 21 per cent, coincides very closely with that which appears to have prevailed among civilians in crowded urban communities where morbidity reports were more or less satisfactory and complete.

Overcrowding in offices appears to have been a factor in the spread of disease among the Navy Department personnel. The case-incidence rate was higher in overcrowded rooms and offices than in more evenly proportioned. That the rates were not higher under the conditions of overcrowding, which then existed, was in a large measure due to the favorable weather prevailing which made it possible to keep all windows open and utilize all means of ventilation. Furthermore, all preventive measures that were practicable were put into effect, and a sanitation officer made daily visits to all offices for the purpose of survey and to give practical advice. Not only was complete sanitary supervision exercised but it is fair to say that those who became ill were able to secure medical advice and treatment more promptly and more regularly than persons under similar conditions in civil employment in most of the large cities of the country. It should be stated that a great majority of the persons represented by these data belonged to the age group 20-30, the age group in which practically everywhere showed very high incidence rates for influenza and the highest case-fatality rates.

*Case-fatality rates for influenza and influenzal pneumonia, Navy.*—From August 31 to December 31, 1918, there were reported for the entire Navy 91,656 cases of influenza, 6,425 cases of bronchitis, and 8,816 cases of pneumonia (all forms).

A great majority of all cases of pneumonia in the Navy during this period were influenzal in origin and, if it be assumed that all cases were influenzal, these figures would indicate that 9.6 per cent of cases of influenza were complicated with pneumonia, if no cases of pneumonia are included, and 8.9 per cent if the cases of bronchitis are included. Furthermore, the case-fatality rate for pneumonia as indicated by these figures would be 49.67 per cent. This is obviously much higher than the true rate, but the true rate cannot be determined accurately. There is no doubt about the fact, but it is known that many cases of pneumonia terminating in death were not recognized, and in some cases of influenza which terminated in recovery the diagnosis was not changed to pneumonia although clinical findings suggested or indicated pulmonic complications. In other words, many nonfatal cases of pneumonia were reported as pneumonia. Every certificate of death received in the Bureau was edited by the Division of Preventive Medicine, and in every case of pneumonia where an influenzal origin was indicated or suggested in the history of the case as contained in the body of the report, the death was charged to "influenzal pneumonia."

During the period, August 31 to December 31, 1918, 4,136 deaths from influenza and influenzal pneumonia occurred in the Navy, and the mean strength was 569,470, making the death rate from influenza 0.72 per 1,000, and the case-fatality rate for influenza 4.5 per cent. This latter rate is undoubtedly higher than the true rate because many cases of influenza, and sometimes cases of moderate severity, were not admitted to the sick list. It has been estimated at various

stations that for every 100 cases of influenza formally admitted to the sick list, from 50 to 75 mild cases were never recorded. With 5 per cent added to the number of recorded cases of influenza the indicated case-fatality rate becomes 3.0 per cent. This figure more closely approximates the true case-fatality rate than 4.5 per cent. In all probability the true case-fatality rate for influenza in the Navy was between 2.5 and 3.5 per cent.

It is more difficult to reach a conclusion with regard to the case-fatality rate for influenzal pneumonia. The figures given above would indicate that pneumonia was a complication in 9.6 per cent of the cases of influenza. This figure is too low but there are no means of accurately determining the true percentage. At various stations where careful study was possible the figures varied from 11.4 to 16.25 per cent, giving an average of 15.9 per cent and a median figure of 16.25 per cent. Assuming that approximately 15 per cent of recorded cases of influenza in the Navy were complicated with pneumonia the indicated case-fatality rate for influenzal pneumonia during the period August 31 to December 31, 1918, would be 30 per cent, assuming that all deaths from pneumonia during this period were really due to influenza, 31.8 per cent.

#### RECOGNITION OF INFLUENZA.

Influenza is not easily differentiated from other acute respiratory infections when the disease is not epidemic, and for this reason in studying influenza, distinctions must not be drawn too finely between the types of cases occurring during epidemics and the types reported as influenza before and after epidemics. A sudden onset with malaise and weakness, leading in a few hours to prostration out of proportion to the other clinical manifestations; the prominence of headache, particularly the so-called post-orbital headache; muscular pain; a sharp rise in temperature to 101 or 102 degrees or even higher; a leukopenia, appear to be the principal guides to recognition of the true case of influenza, pending agreement as to the value of bacteriological findings or the discovery of a microorganism which can be agreed upon as the causative agent of the disease.

Studies of cases occurring in various outbreaks of influenza in the Navy during this pandemic show a remarkable similarity in the clinical characteristics of the disease all over the world. Inasmuch as epidemics varied considerably in duration and intensity it is not surprising that there was also considerable variation in the proportion of uncomplicated cases, both mild and severe, to the complicated severe cases. Mild, uncomplicated cases occurred everywhere even when epidemics were at their peaks, and such cases appear to have had the same characteristics wherever they occurred, before, during, and after the primary epidemic. At the majority of naval stations, as well as on board ship, a certain number of cases occurred which were clinically very severe from the moment of onset and terminated fatally, sometimes in less than 36 hours. These cases occurred principally at the height of an epidemic; were uncommon previous to September 1, 1918, and were not often seen after the passing of the primary epidemic.

The outstanding feature of the pandemic was the frequency with which secondary pneumonia of the bronchial type developed. The

lication was the cause of death in practically all fatal cases of enza.

The clinical course in cases complicated by pneumonia varied considerably at each place or hospital. Pneumonia developed early, almost immediately in some cases; in others only after several days of enza or after a remission, and in some instances after convalescence had apparently begun.

With due allowance for the fact that a hemolytic streptococcus was associated with most or all cases of complicating pneumonia in one place, whereas a pneumococcus predominated in another place, it may be said that there was a remarkable similarity in the cases complicated with pneumonia as well as in ordinary uncomplicated cases of enza wherever they occurred, not only in all parts of the United States but in England, France, the West Indies, South America, and Orient. That is, the general picture of influenzal pneumonia was the same all over the world.

In practically all cases of complicating pneumonia a hemolytic streptococcus, a pneumococcus, the Pfeiffer bacillus, or a combination of these microorganisms seemed to play a part in causing the pneumonia lesions. However, it is generally agreed that the pneumonia was sufficiently characteristic to stand out as a type different from cases of ordinary pneumonia seen in recent years and more or less different too from the types of broncho-pneumonia which so frequently complicated measles in 1917 and early in 1918.

In various reports, with reference to clinical and post-mortem findings and with regard to statistical data for various stations and in many parts of the world, it appears that of 1,000 cases of enza from 30 to 40 terminated fatally; from 10 to 30 in some places and as many as 90 or more under unusual circumstances. As a rule from 100 to 200 cases in a thousand had pneumonia complicated with definite clinical manifestations. Such cases averaged, respectively, 150 per 1,000 cases of influenza. A small number of these patients lived only a day or two, and the exact nature of the infecting organisms and the immunological conditions involved in such cases are still unknown. In many of the fatal cases of pneumonia a primary invader, a pneumococcus or streptococcus, or both, seemed to play an important if not the paramount rôle in causing death. In some cases the Pfeiffer bacillus was present in the tissues and in cells at numbers and appeared to be responsible for the pneumonia, although such as it was recovered in pure culture.

Causes of death other than pneumonia were few. Cerebro-spinal fever was a not uncommon concomitant infection or sequela at all training stations and in a few ships.

Besides broncho-pneumonia, the following complications were

Primary edema.

Primary hemorrhage.

Enema.

Enema.

Inflammation of the glottis.

Myocarditis.

Endocarditis.

Pericarditis.

Acute nephritis.  
 Acute pyelitis.  
 Septic embolism.  
 Brain abscess.  
 Hemiplegia.  
 Toxic psychosis.  
 Acute neuritis.  
 Acute hepatitis.  
 Acute cholangitis.  
 Acute cholecystitis.  
 Liver abscess.  
 Acute enteritis.  
 Hiccough.  
 Splenic abscess.  
 Acute periostitis.  
 Epistaxis.  
 Acute mastoiditis.  
 Suppurative cervical adenitis.  
 Sinusitis.  
 Acute phlebitis.  
 Pneumothorax with subcutaneous emphysema.  
 Pneumococcus cerebro-spinal meningitis.  
 Streptococcus cerebro-spinal meningitis.  
 Pfeiffer bacillus cerebro-spinal meningitis.  
 Acute encephalitis with multiple abscesses of the brain.

During the calendar year, 1918, the cause of death in 4,155 fatal cases of influenza was assigned as follows:

Influenza (uncomplicated or complication unrecognized) .....	9
Pneumonia, bronchial .....	2,4
Pneumonia, lobar .....	7
Abscess of kidney .....	
Acute dilatation of the heart .....	
Pulmonary edema .....	
Embolism .....	
Meningitis, cerebro-spinal .....	
Acute nephritis .....	
Pleurisy, serofibrinous .....	
Pleurisy, suppurative .....	
Sinusitis .....	
Septicemia .....	
Hydropneumothorax .....	
Erysipelas .....	
Total .....	4,1

Of the cases of influenza in which complications did not develop 800 to 875 in a thousand, and probably more than 900 in some instances if the truth could be known—the majority were ordinary cases of influenza, similar to the grippe cases of ordinary times. Some of the uncomplicated cases the patient appeared to be very ill for three or four days. On the other hand, there were always numerous mild attacks which either did not prevent the performance of usual tasks or necessitated confinement to bed or quarters for only one, two, or three days. The frequency with which very mild cases were seen leads to the belief that a great many persons were attacked by the disease in such mild form that it was not recognized even as an acute minor respiratory affection.

It is not improbable that approximately 40 per cent of the total naval personnel actually became infected at some time or other in 1918, which would correspond to the figure accepted for the incidence in civilian populations during the 1889-90 pandemic.

*influenzal pneumonia*.—Some of the cases were very similar in to acute lobar pneumonia, and a good many cases were so diagnosed particularly early in the epidemic. In some instances even post mortem findings simulated those of acute lobar pneumonia. The more thoroughly cases were studied the less did it appear that cases of influenzal pneumonia were ever those of a true lobar pneumonia.

In most cases the onset of pneumonia was not abrupt, and the primary complication developed so unobtrusively that it was liable to be overlooked without careful and repeated physical examinations. Frequently the temperature, respiration rate, and character of the sputum suggested the presence of pneumonia when it could not be found with the stethoscope. A rising white count was significant. In some instances the pneumonic complication developed within the first 24 hours, but in the great majority of cases not until after 48 hours, and frequently not until after a remission on the third or fourth day. Several observers noted that bronchopneumonia of some degree could be considered to exist if there was no cessation of influenza symptoms by the sixth day.

For full development, the distinguishing features of influenzal pneumonia were extreme toxicity, rapid respiration becoming very rapid upon the least exertion, early appearance of cyanosis of the lips and finger tips extending to the body before death; a relative paucity of physical signs in comparison with the obviously grave condition of the patient, pulmonary edema, and abundant bloodstained sputum or thin rusty muco-purulent sputum. In severe cases, in many cases there were physical signs of extensive involvement of the lungs.

The appearance of the patient; his bluish or purplish lips, cyanosis of the ears, ashen cyanosis of the face or blue mixed with red where there was congestion, drooping eyelids, and the "air hunger" often seemed due more to toxemia and to changes in the blood than to lack of proper aeration in the lungs, made an unforgettable picture in cases where medical treatment was practically without

effect. Many of the cases were regarded as mixed infections and clinically were septicemias. In the majority of instances blood cultures were negative, but in some streptococci or pneumococci were obtained from the blood during life. Rarely, the Pfeiffer bacillus was found in blood culture.

In all cases of influenzal pneumonia presented the picture described above. Indeed, reports from various naval hospitals denote considerable variation in clinical manifestations as well as in post-mortem findings at each place during the epidemic, but this was true in many of the cases, especially at the height of the epidemic when influenza seemed to be more highly communicable than before or after and when influenzal pneumonia was more prone to occur. It would not do to compare the pneumonia cases occurring at one place early in the epidemic with those occurring later at another place. Pleurisy of some degree complicated the great majority of pneumonia cases at all stages of the epidemic, but there were very few empyemas until after the epidemic had passed, even patients living as long as 14 days.

Physical signs in the chest varied extremely from those strongly suggestive of frank lobar pneumonia to a few subcrepitant rales only, elicited with difficulty, or no signs whatever. Collections of fluid, emphysematous areas, collapsed areas, extravasations, filled and obstructed small bronchi, confluent areas of consolidation, alterations of the blood and possibly acute toxic neuritis of the vagus and peripheral nerves of the thorax accounted for diverse physical findings. Frequently neither a diagnosis nor prognosis could be based upon physical findings.

Cases of fatal septicemia were reported in which there was no consolidation in the lungs, although there was intense congestion and extensive bronchitis. The bronchioles and alveoli were filled with fluid resembling hemolyzed blood. Blood cultures in certain groups of such cases gave pure growths of a green-producing streptococcus which sometimes hemolyzed and sometimes did not. This microorganism also grew as a diplococcus at times and was difficult to distinguish from Type IV pneumococci.

Some observers reported cases of hemorrhagic septicemia with lung involvement other than hemorrhages or extravasations in which a pneumococcus was thought to be responsible. It is possible that this microorganism was really a streptococcus of the type mentioned.

*Morbid anatomy.*—At the United States Naval Hospital, Chelsea, Mass., post-mortem study of 23 cases at the height of the epidemic which began in Boston August 27, 1918, showed the Pfeiffer bacillus present in the lungs in pure or mixed culture in 19 cases and in other 4 a hemolytic streptococcus was present in pure culture. Pfeiffer bacillus was present alone in 6 of the 23 cases. At the United States Naval Hospital, Philadelphia, lung punctures made in 31 cases during life showed the presence of the Pfeiffer bacillus, dominating or mixed with "strepto-pneumococcus," or with catarrhalis and other common microorganisms in 15 cases.

The post-mortem findings in the chest with respect to the amount and character of fluid found in the pleural cavities varied considerably. Pleuritis of some degree occurred in the great majority of all cases of influenzal pneumonia. Thoracentesis was frequently and repeatedly performed during life, necessarily affecting somewhat the amount of fluid found after death, which varied from a few cubic centimeters to a liter or more. In most cases the amount was small.

Reference has already been made to the fact that empyema was a very infrequent occurrence during the epidemic. However, it was found in 6 of 56 cases of influenzal pneumonia coming to necropsy at the United States Naval Hospital, Great Lakes, Ill. In most of the cases the fluid found in the pleural cavities was very thin. It was generally noted that the fluid contained little fibrin and was tinged with blood.

The lesions in the lungs were characteristically those of primary bronchitis and broncho-pneumonia. When the lesions were limited to one lobe, usually a lower lobe was affected. In most cases areas of consolidation were found in both lungs, and the lesions were scattered through several lobes. In many instances confluent areas of consolidation gave the gross appearances of lobar pneumonia.



striking feature which characterized influenzal pneumonia was great amount of thin, watery, bloody, or blood-colored fluid or dark fluid containing hemolyzed blood which dripped from the surface of the lung, filled the alveoli and bronchioles, and in the case of extravasations under the visceral layer of the pleura in spots or in areas of from one to several centimeters in diameter red bullae or suggested subpleural hemorrhage.

Many composite pictures were presented, but in general it appears that the findings could be divided into two principal groups, depending chiefly upon whether death occurred in the first few days of the disease or whether life was prolonged for 10 days or more.

Where death occurred early in the disease the picture was that usually described as acute hemorrhagic pneumonitis, disseminated hemorrhagic pneumonia, primary toxic injury of pulmonary tissue leading to rapidly fatal septicemia with intense engorgement and localization in the lungs. The lungs were heavy. The pleural surfaces were smooth and usually wet, bluish gray, purple, or slate colored, and often showed a mottling or dark red streaks due to collections of hemorrhagic fluid or extravasations of fluid containing blood beneath the pleura. The lung surfaces were usually almost entirely free from fibrin. Here and there the lungs were partially consolidated. Various portions of the lungs, especially the lower lobes, showed areas of consolidation, and frequently edema and emphysema were noted in areas not consolidated.

The cut surface of the lung varied in color from bluish gray or dark purple to dark red. As a rule, affected areas were dark red. A lineaceous red or dark fluid dripped from the cut section. "The picture of nodular consolidation of ordinary broncho-pneumonia was not present." Cases of longer duration frequently showed a greater variety of lesions. "The lungs exhibited a constantly varying picture of broncho-pneumonia from a peppering of discreet lobular areas scattered throughout all lobes to large and often massive consolidated areas of consolidation involving 75 per cent of the lungs." The shades of color of the prominent lobules surrounded by the unconsolidated areas and the pale collapsed areas gave a mottled appearance." Areas of emphysema were usually present in involved portions of the lungs as well as in tissue intervening between consolidated areas. Sometimes intense engorgement without consolidation was found, and from areas filled with fluid presenting a solidified appearance blood stained or dark fluid exuded upon pressure. The lining membrane of bronchioles was intensely congested and even the lining of the trachea and large bronchi was often deep red.

A relatively small amount of fibrin present in the lung of influenzal pneumonia was noted by most observers. Panbronchitis and bronchitis were commonly found. The peribronchial and bronchopulmonary glands were generally enlarged, intensely inflamed, and edematous.

In cases of longer duration, coming to necropsy after 10 or more days of illness, more extensive and more complete consolidation was usually found and dilatation of bronchioles, congested in the cases of longer duration, showed extensive necrosis in the late cases and the lungs frequently contained thin purulent material or pus.

In some of the more prolonged cases diffuse and confluent small abscesses were noted with yellow pus exuding from the cut surface. Fibrino-purulent material was present in many of the late cases. In some instances bronchiectasis was extensive. In general, a prominent feature in the cases of 10 or more days' duration was extensive bronchitis and peribronchitis with foci of broncho-pneumonia in various states from grayish consolidation to abscesses containing creamy pus. In these cases the lungs were dryer but there were traces of previous engorgement. In many instances there were evidences of organization taking place in the alveoli and dilated bronchioles.

In cases coming to necropsy after 14 days of pneumonia interlobular fibrino-purulent pleural exudates were not uncommon.

"In sections studied microscopically from the early stage of pneumonia it is more evident than in gross that a general bronchitis, especially bronchiolitis precedes the infiltration of alveoli. One finds in unconsolidated areas, bronchioles filled with an exudate composed of polymorphonuclear and mononuclear leucocytes with varying amounts of fibrin and amorphous hyalin material. The infundibula and air vesicles subtended by the bronchiole may contain an exudate of leucocytes with little or no fibrin, forming a small focus of broncho-pneumonia. More characteristic of this stage of inflammation is a lesion of the walls of certain infundibula and air vesicles in the neighborhood of, and within the latest areas of consolidation. A hyalin membrane partially or completely covers the walls of these air spaces. The membrane is irregular in thickness, sometimes stratified with occasional cells within narrow clefts. It tends to be thickest over the angles of the wall, though it may be so abundant as to fill an alveolus.

"In older foci of pneumonia leucocytes are the predominant inflammatory element, with small amounts of blood and fibrin, but in the diffusely consolidated patches or lobes of short duration, serous fibrin, and red cells are most conspicuous. Especially prominent are the large areas of hemorrhage from capillary rupture. In certain areas numerous focal necroses of alveolar walls are observed. In older lesions the smaller bronchi contained plugs of leucocytes, fibrin and hyalin material, and their epithelial lining was partially or completely ulcerated and covered by a fibrino-purulent membrane.

Most of the victims of influenza in the Navy were robust young men when attacked and the numbers of these well-developed and well-nourished bodies at necropsy made a spectacle sad beyond description.

Extreme engorgement of the whole venous system with distension of subcutaneous and abdominal veins filled with a thin black fluid watery in consistency, was sometimes noted. The right side of the heart was then acutely dilated. Frequently there was no marked alteration in the size of the heart. "The heart muscle commonly had a glazed or scalded appearance." It was noted at times that the pectoral and recti muscles presented the same appearance. Acute degenerative myocarditis was commonly found. Reports made little reference to the condition of the cardiac valves. Acute vegetative endocarditis of the mitral valve was noted in one instance at the United States Naval Hospital, Great Lakes, Ill.

The spleen, liver, and kidneys, as a rule, exhibited varying degrees of congestion. Active acute nephritis was infrequently found.

port from the United States Naval Hospital, Great Lakes, Ill., ed that little or nothing worthy of special note was found in ors other than the lungs in the acute pneumonia cases. Complica-s were found in cases where death occurred later on, after the ary acute attack had subsided. The spleen was seldom enlarged ny marked degree. It was usually firm. The list of complications n above indicates the character of lesions found in these organs nusual instances.

a report from the United States Naval Hospital, Philadelphia, intense congestion of the adrenal bodies without progressive in-matory changes was noted. A report from the United States al Hospital, Chelsea, Mass., noted small foci of hyalin necrosis in adrenal bodies in a majority of the cases in which death occurred or five days after the onset of pneumonia.

rst and last, leptomeningitis was found in a good many nces. Sometimes a pneumococcus was recovered from the inges; sometimes a streptococcus; and rarely, the Pfeiffer bacil-. As previously noted, brain abscesses were occasionally found. na of the brain was frequently noted.

her findings noted in rare instances at post-mortem examina- were hyalin degeneration, necrosis, rupture, and hemorrhage one or both of the abdominal recti muscles, acute arteritis, phle-, and septic emboli with resulting infarction of the brain or of or another of the parenchymatous organs.

#### ICAL MANIFESTATIONS OF INFLUENZA AND INFLUENZAL PNEUMONIA AS COMMENTED UPON IN VARIOUS NAVY REPORTS.

*Headache.*—Reports generally agree that headache was one of the constant symptoms in the early stages of influenza. It occurred he most prominent symptom in from 75 to 80 per cent of 900 s of influenza analyzed at the United States Naval Hospital, adelphia, Pa., and as the chief complaint in from 50 to 30 per of the cases according to whether they were admitted to hospital in the first 24 hours of the disease or not until after 72 hours. eadache was usually frontal. In many reports it was designated "post-orbital." The eye balls were frequently painful and tender pressure. Undoubtedly due to the toxemia in some cases, head- was commonly caused by nasal congestion and rhinitis with king of the frontal sinuses.

eadache late in the disease was reported as due to a variety of ns; inflammation of the frontal sinuses, less commonly other ssory sinuses, neuritis, meningitis, embolism, intracranial con- on and abscess.

*Prostration.*—Prostration of some degree almost from the moment he sudden onset of influenza was rarely absent. In cases of ary severity the initial weakness was almost always out of ortion to the fever and to the pulse and physical findings in arison with other acute infectious diseases. Even in very mild s there was often great weakness which persisted throughout onvalescent period and fatigue was often readily induced long r the patient had returned to duty. Instances were very common re unusually strong, fully developed men perfectly well in the rnoon were so weak the following morning upon admission to pital with influenza that they could scarcely sit up in chairs.

Many patients became ill on the street while on liberty and had not sufficient strength to return to ship or station.

Prostration was commonly attributed to intense early toxemia which occurred suddenly and in complicated cases developed into a profound adynamic state in which myocarditis and toxic neuritis played a part.

*Vertigo.*—This was an unpleasant symptom frequently present even in mild cases. While brought on by slight exertion it also occurred frequently when the patient was lying quietly in bed.

*Chills.*—An initial chill was of very frequent occurrence. A definite chill or chilliness occurred in about 50 per cent of the cases. Chilly sensations commonly recurred during the first 24 hours of the disease and not infrequently chilliness recurred at irregular intervals up to 72 hours.

*Muscular pains.*—Reports from all ships and stations showed uniform agreement in making mention of the prominence of backache and pains of varying severity in other muscle groups and in the joints. A common description was, "The patient feels as though he had been beaten all over with a club." In the Philadelphia series general muscular pains were noted as a prominent symptom in from 54 to 63 per cent of all cases admitted to hospital.

*Coryza.*—A "cold in the head" with sneezing and nasal discharge occurred in the early stages of the disease in perhaps half the cases of influenza. In the Philadelphia series this symptom was noted in 20 per cent of the cases admitted to hospital.

*Conjunctivitis.*—Some degree of congestion of the conjunctiva accompanied coryza. Congestion of the eyes was noted in from 10 to 30 per cent of the 900 hospital cases carefully studied in Philadelphia. Infrequently conjunctivitis of marked degree was noted and corneal ulcers occurred in several instances in a series of 2,000 cases of influenza studied at the United States Naval Hospital, Great Lakes, Ill.

*Nausea and vomiting.*—The so-called intestinal form of influenza was not common during this pandemic. Nausea occurred in from 10 to 20 per cent of the cases studied at the United States Naval Hospital, Philadelphia, and vomiting occurred in from 5 to 15 per cent. Nausea and vomiting were more common in cases admitted to hospital late in the disease.

In a few cases, perhaps a dozen, diarrhea was associated with nausea and vomiting. In the majority of these instances there was some abdominal distension and pain with tenderness on palpation, particularly in the right iliac fossa. The pain disappeared quickly as a rule, but simulated appendicitis while it lasted.

A report from the United States Naval Hospital, Chelsea, Mass., noted that nausea and vomiting occurred in a few cases. At the United States Naval Hospital, Great Lakes, Ill., it was believed that nausea and vomiting in the majority of instances were due to overmedication, as these symptoms were relieved by discontinuing medication.

At the United States Navy Base Hospital No. 5, Brest, France, on one case of what might be termed a definite gastro-intestinal form of grippé with nausea and vomiting and severe diarrhea was noted. A report from the receiving ship at Norfolk, Va., which included a detailed clinical description of 962 cases of influenza, no mention

and vomiting was made, and it is significant that these symptoms were not alluded to in most reports. Diarrhea was not a prominent symptom. In most reports it was not mentioned.

*hematemesis.*—Reports indicate that hematemesis occurred very frequently. It was not mentioned in the report of 2,924 cases at the United States Naval Hospital, Great Lakes, Ill., and in the report of the United States Naval Hospital, Philadelphia, Pa., it is noted when vomiting occurred the vomitus was usually free from blood. Hematemesis of large amount was not mentioned in any report.

*Abdominal distension.*—Paralysis of the intestines appears to have preceded death in the majority of fatal cases. Abdominal distension was more to occur in toxic cases and was difficult to overcome.

*Abdominal pain.*—Abdominal pain and soreness in the region of the diaphragm were frequently attributed to continued coughing. In some instances degenerative changes in the abdominal muscles were productive of pain. Not infrequently pleuritic pain referred to the region of the gall bladder led to a diagnosis of acute cholecystitis or appendicitis. Occasionally acute cholecystitis did occur.

*Hiccough.*—Hiccough occurred in approximately 1 per cent of hospital cases. Occasionally it was serious and could not be controlled. In approximately 3,000 cases of influenza treated in the naval hospital at Great Lakes, persistent hiccough occurred in but one instance, the patient dying on the fifth day.

*Jaundice.*—Jaundice occurred infrequently and it is mentioned in a few reports. It was present, probably, in less than 1 per cent of the cases of influenza. Duodenitis and cholelithiasis appear to have been rare. Icterus of hematogenous origin occurred occasionally in severe cases and was attributed in a few instances to acute cholecystitis. In one case at the United States Naval Hospital, Philadelphia, that of a negro, jaundice was so intense that the sputum was yellow in color. Jaundice of some degree was observed in a minority of the fatal cases in the naval hospital at Great Lakes. In 50 per cent of the Philadelphia cases having jaundice terminated fatally.

*Nervous system.*—In a large majority of influenza cases, even in non-fatal cases, the nervous system was affected to some degree. Insomnia was mentioned in many reports. Somnolence was also frequently noted. Seventy per cent of the hospital cases treated at Great Lakes during the height of the epidemic there exhibited meningo-encephalopathy. Active delirium occurred in 20 per cent of the cases. Occasionally delirium was active to a maniacal degree. Stupor and coma were noted in some instances. Perception was frequently impaired, and often in complicated cases the patient did not realize his condition. "Lethargic or mildly stuporous patients with severe broncho-pneumonia, obviously critically ill and within 24 hours of death, nevertheless stated that they felt well and requested permission to leave bed and return to duty." On the other hand, marked mental depression was not uncommon in uncomplicated cases of moderate severity and was sometimes associated with the fixed idea that death must follow.

Several observers described cases exhibiting meningeal symptoms; severe headache, stiffness of the neck or retraction of the head and Kernig sign with delirium, in which the cerebro-spinal fluid

was clear. Sometimes lumbar puncture and withdrawal of fluid under pressure resulted in prompt alleviation of symptoms.

A mild degree of toxic neuritis of peripheral nerves was not common. Among the sensory phenomena, hyperesthesia, pains in the arms and legs, tingling, itching, heat sensations, and other indications of paresthesia were noted. Sometimes anesthesia followed hyperesthesia. Pain along nerve trunks, notably the sciatic median nerve, was complained of in some instances. Various motor nerves were also affected. Some of the fatalities were in part attributed to toxic neuritis of the vagus nerve.

Mental depression not infrequently continued or developed during convalescence from influenza. In the Philadelphia series some post-influenzal psychoses were seen. The cases were described as having mild melancholia or suicidal tendencies. One patient had a series of epileptiform convulsions, preceded and followed by melancholia with depressive delusions, from which he ultimately recovered.

Many patients developed neurasthenia during convalescence. Mental depression and loss of interest in the surroundings were noted and in a number of cases a diagnosis of dementia præcox was made. Recovery usually followed in from 6 to 8 weeks.

Partial paralysis of the palate, ptosis, strabismus, and weakness of various muscles were frequent sequelae even in mild cases of influenza. Impairment of hearing was also observed. Such disabilities usually wore off in the course of a few months.

*Temperature, pulse, and respiration.*—Many reports agree in the statement that the onset of fever was abrupt. As a rule, the temperature rose rapidly to between 101 and 105 F., and remained high for nearly all cases until a remission occurred on the second, third, or fourth day. In uncomplicated cases the remission usually marked the beginning of convalescence although some cases terminated in relapse, and occasionally a subsequent rise of short duration occurred. A subsequent rise in temperature generally indicated a pulmonary complication, and when the temperature remained high after the sixth day many observers learned by experience to suspect the presence of broncho-pneumonia. In cases of influenzal pneumonia the temperature was the rule—from 104 to 105 F., and frequently higher at certain hours of the day. At the United States Naval Hospital, Puget Sound, Wash., a temperature of 107 F. was observed in one case.

The usual observation was that the pulse was not unduly rapid. Even in pneumonia the rhythm remained regular although it was often momentarily disturbed during a paroxysm of coughing. The pulse was usually soft and the volume large. Frequent mention was made of a poor quality of heart sound at the apex and of muscular impairment. However, cardiac failure *per se* was not often the immediate cause of death. Many cases were seen in which the heart beat was forcible on palpation and the heart sounds loud and yet the patient was pulseless at the wrist and death was approaching.

Low blood pressure was reported as frequent or constant. The systolic pressure usually ranged from 85 to 110. The diastolic pressure was frequently between 45 and 55. The pulse pressure was often increased.

Many reports indicate that the pulse rate was slow in proportion to the temperature. A pulse of 80 with a temperature of 104° or

e of 90 with a temperature of 105° and a respiration rate of 190 were commonly noted. Exceptionally a very rapid pulse was found in pneumonia cases. In a few instances bradycardia was observed. A rapid pulse was not uncommon during convalescence from influenza, especially after exertion.

The respiration rate in influenzal pneumonia was not increased to the degree that would be expected from the nature of the lesions in the lungs. The rate was usually below 30. "Whenever the respirations exceeded 24 per minute, pneumonia was suspected, and this suspicion was strengthened if the sputum was bloodstained, existing when pleuritis caused the increased respiratory rate." Nothing was free but shallow and frequently became very rapid after exertion. In such cases the form of cyanosis alluded to above appeared to be due, in part at least, to changes in the constituents of the blood leading to air hunger without causing great distress in anything. With the development of pulmonary edema cyanosis increased, dyspnea became marked, the breathing was rapid, the patient was delirious, and there was great restlessness. "This disquieting terminal stage, with the bubbling râles, frothy sputum, the livid picture of heaving chest, cyanosis, and air-hunger facies, remain as a nightmare to those of us who dealt with these cases in large numbers."

*Cough.*—Cough was a very constant sign and ranked next after fever in occurrence during the first 48 hours of the disease. There were a few cases in which cough did not occur at same stage of the disease.

It occurred in from 80 to 85 per cent of all cases of influenza. Of 352 cases of influenza admitted to the United States Naval Hospital, Philadelphia, Pa., within 24 hours after the onset of the disease, cough was present in 67 per cent and was the chief complaint in 8.5 per cent of the cases thus early in the disease.

Moderate in severity, "dry" or "hacking" at first, and usually accompanied by "tightness" or "soreness" in the chest, the cough subsided rather promptly as a rule and the sputum became abundant. Comments with regard to cough varied considerably in different reports. "Frequently, on the second or third day, patients complained of 'tightness' or 'soreness' of the chest, and there appeared a bronchial cough, moderate in severity, which was productive of large amounts of greenish or whitish mucoid sputum." "Cough developed early in most cases, with definite pain in the chest." The larynx was frequently involved in the course of influenza with resulting laryngeal cough and aphonia. This condition rarely lasted more than a few days, and often there seemed to be very little discomfort from that cause. During epidemics many persons who did not become acutely ill developed laryngeal or bronchial cough which persisted for several weeks. Few patients actually ill with influenza escaped bronchitis of some degree, and even in mild cases cough was sometimes distressing and persistent during convalescence. "This persistence of mild bronchitis, with little cough and little or no sputum, would make one careful not to discharge men too early to duty where exposure may precipitate another attack."

With the development of influenzal pneumonia the character of the cough was modified by the nature and extent of the lesions in the lungs and the degree of pleural involvement. Some of the pneumonia patients had very little cough in proportion to the physical

findings. When sputum was raised with difficulty the cough was frequently most distressing, paroxysmal in character, and interfered with sleep. When the sputum was abundant it was generally evacuated without difficulty until the patient became too weak to cough effectively, when even with the lungs full there was sometimes no coughing at all.

*Sputum.*—In uncomplicated cases of influenza the sputum was mucoid at first and later muco-purulent and rather thin, grayish or greenish in color. The amount varied considerably but it was usually moderately abundant after the first two or three days. In exceptional cases there was little or no sputum. In some apparently uncomplicated cases the sputum was rusty or tinged with blood.

In cases of influenzal pneumonia the character of the sputum varied from a thin, watery, bloody fluid resembling diluted red paint, to bloody pus and in later cases and cases of prolonged duration pure greenish or yellowish pus. Destruction of erythrocytes and admixture of free blood pigment with the sputum led to a variety of colors; red, rusty, dark brown, and even black. In some cases the bronchi were filled with fluid; in others the sputum was scanty, but in most cases all through the disease the amount of sputum was more abundant than in ordinary cases of pneumonia. The sputum was frequently recorded as frothy. The more purulent the less froth it contained, as a rule. In the terminal stage with pulmonary edema froth was commonly noted.

*Hemoptysis.*—As noted above, blood or blood coloring matter in the sputum was of very common occurrence. Actual hemorrhage into the lungs and into the bronchi occurred not infrequently in the pneumonia cases. Undoubtedly hemoptysis was due in many instances to the escape of blood from the intensely congested bronchial mucous membrane. At the United States Naval Hospital, Great Lakes, Ill., it was noted that hemoptysis frequently preceded the development of pneumonia and sometimes continued throughout. All degrees from bloody froth to frank hemorrhage were observed. In reports reaching the bureau no mention was made of fatal pulmonary hemorrhage or of an instance in which death could be attributed to the loss of blood rather than to infection and toxemia.

*Epistaxis.*—Hemorrhage from the nose was quite commonly associated with influenza in uncomplicated cases as well as with influenzal pneumonia. In Philadelphia, epistaxis occurred in 9.7 per cent of the 900 cases treated in hospital, and in one instance it was necessary to resort to packing and intramuscular injection of serum. Bleeding was frequently due to venous engorgement without evidence of inflammation. The blood seemed to ooze from the mucous membrane and usually no ulceration could be detected. On board the U. S. S. *Leviathan* epistaxis was observed in 20 per cent of the cases as a very early manifestation of influenza. In the receiving ship at Norfolk, Va., epistaxis was troublesome in 6.2 per cent of the 962 cases of influenza, and it was noted that in every case with intense headache the headache was greatly relieved with bleeding from the nose. Bleeding of some degree was observed in 30 per cent of the 962 cases and, in general, epistaxis bore no relation to the severity of the disease as it occurred in many of the mildest as well as in many of the most severe cases. It is noted in a report from the U. S. S. *Northern Pacific* that free hemorrhage from the nose oc-



ed in many cases with general improvement in the condition of patient; so much so that venesection was later practiced in severe with good effect. At the United States Naval Training camp, bit, Mich., hemorrhage from the nose occurred in about 40 per of all cases of influenza and in some instances was very profuse. l cases bleeding was limited to the anterior nares. On board the . S. *Wilhelmina* epistaxis occurred in practically all patients e symptoms were of moderate severity.

the United States Naval Hospital, Great Lakes, Ill., acute nasal rrhages occurred in a number of cases, apparently with bene- results. In 9 among 2,924 cases of influenza, epistaxis was ently severe to require packing. Ulcers of the septum were l in four cases.

*tongue and throat.*—There was nothing characteristic about the e in ordinary influenza cases. In those which were severe or icated the tongue was usually dry and leathery or it pre- d a dry beefy red surface covered with glairy mucus.

re throat occurred in about 20 per cent of the 900 Philadelphia and was the chief complaint in from 3 to 5 per cent. In Nor- slight soreness of the throat was a common manifestation. e height of the epidemic in Boston it was noted that sore throat not complained of in typical cases. In cases among the naval nnel in France, throat symptoms were few. In the Philippines, throat was a prominent symptom in many instances. On the e, the throat was often congested but usually the patient did complain of soreness. In the Great Lakes series streptococcus throat was occasionally observed. "The patient may or may ave sore throat in the very early stages of influenza—usually Not infrequently patients attributed the attack of influenza slight sore throat a few days previously, but the majority gave story of previous illness."

*adenitis.*—In a report from the United States Naval Hospital, delphia, Pa., it was noted that a general adenitis was very ently discovered upon examination. The whole chain of super- glands was often involved, including the cervical, axillary, ochlear, and inguinal glands. Enlargement persisted during ourse of the disease, but the glands seldom became larger than or bean.

the United States Naval Hospital, Great Lakes, Ill., cervical tis was seen occasionally and suppuration occurred in four in- es among 2,924 hospital cases of influenza.

*blood.*—In uncomplicated cases of influenza the leucocyte count rarely above normal and usually below normal. In fact, a ite leucopenia was a striking feature and a most useful diag- c sign in influenza all over the world.

e following is a composite blood picture in 100 uncomplicated of influenza:

blood count.....	6,950
orphonuclear leucocytes.....per cent..	67.5
ymphocytes.....do.....	21.2
ymphocytes.....do.....	3.8
nuclear leucocytes.....do.....	4.4
sitional cells.....do.....	2.1
ophiles.....do.....	.7
hiles.....do.....	.3

The following is a composite blood picture in 100 cases of influenzal pneumonia:

White blood count.....	17.6
Polymorphonuclear neutrophiles.....	82
Small lymphocytes.....	8
Large lymphocytes.....	2
Mononuclear leucocytes.....	2
Transitional cells.....	3
Eosinophiles.....	
Basophiles.....	

A report of influenza cases treated in the United States Naval Hospital, Chelsea, Mass., during the height of the primary epidemic states that the average white count was 4,900, but that over half the patients had white counts of less than 3,000 and that the cases in which broncho-pneumonia developed all showed a low blood count.

At the United States Naval Hospital, Puget Sound, Wash., the following findings were obtained in 10 fatal cases of the acute hemorrhagic pneumonitis type attributed to severe streptococcal septicemia complicating influenza.

Case No.	Admitted.	Died.	Average temperature.	Average white count.
1.....	24	24	104.0-105.0	(1)
2.....	24	26	105.0	4
3.....	25	27	103.0-105	3
4.....	25	27	104.0-105	1
5.....	26	27	104.6-105	3,000-4
6.....	24	28	104.6-105.6	5
7.....	24	28	103.0-104	6
8.....	25	29	105	4
9.....	29	30	104	4
10.....	25	30	103.8	3

<sup>1</sup> Not taken. Dead two hours after admission.

At the United States Naval Hospital, Great Lakes, Ill., in 571 cases of influenza and influenzal pneumonia blood findings were:

White-blood counts of—	Per cent
5,000 or less were found in.....	15
between 5,000 and 10,000 in.....	38
between 10,000 and 15,000 in.....	22
15,000 or over in.....	24

It was noted that counts taken during the height of the acute attack shortly after admission to hospital showed a normal count and a definite leucopenia in practically every case.

A report from the United States Naval Hospital, Philadelphia, Pa., stated that a high or rising white count was maintained in cases of influenzal pneumonia which were progressing favorably, although a falling count, while in general indicating an unfavorable clinical state, seemed not necessarily to define a fatal issue. Many cases with white counts slowly decreasing for several days eventually recovered. An interesting and valuable observation in daily blood examination was the gradual or sudden change from the blood picture of uncomplicated influenza to that of influenzal pneumonia. By noting the rising white count and reduction in the percentage of small lymphocytes it was frequently possible to anticipate clinical findings of broncho-pneumonia by several days. In a few instances neutrophils

generation of polynuclear leucocytes was observed and marked elevation of lymphocytes was noted in one case in a series of over 100 examinations.

The following tables show in detail the leucocyte and differential findings in different series of uncomplicated influenza cases and in different series of influenzal pneumonia cases:

No. 19.—*Leucocyte counts in 28 early cases of influenza from one ward, United States Naval Hospital, Chelsea, Mass., Sept., 1918.*

Cases.	W. b. c.	Poly.	Lymph.	L. Mono.	Trans.	Eosin.	Baso.
.....	6,200	76	20	2	2	.....	.....
.....	6,800	25	38	1	5	.....	1
.....	8,400	77	14	3	6	.....	.....
.....	10,000	73	25	1	1	.....	.....
.....	5,600	44	50	6	.....	.....	.....
.....	6,800	72	24	2	2	.....	.....
.....	7,200	80	20	.....	.....	.....	.....
.....	7,200	88	12	.....	.....	.....	.....
.....	4,400	54	44	2	.....	.....	.....
.....	8,000	74	20	4	2	.....	.....
.....	6,800	68	30	2	.....	.....	.....
.....	6,600	52	45	.....	2	1	.....
.....	4,200	60	40	.....	.....	.....	.....
.....	4,600	50	46	2	2	.....	.....
.....	5,200	52	46	2	.....	.....	.....
.....	5,800	48	52	.....	.....	.....	.....
.....	4,200	48	52	.....	.....	.....	.....
.....	6,800	64	28	4	2	2	.....
.....	7,200	72	26	.....	.....	2	.....
.....	6,800	68	30	.....	2	.....	.....
.....	4,600	66	34	.....	.....	.....	.....
.....	5,800	40	56	.....	4	.....	.....
.....	8,600	75	24	.....	.....	1	.....
.....	7,200	78	16	4	2	.....	.....
.....	4,400	56	36	4	4	.....	.....
.....	4,200	68	32	.....	.....	.....	.....
.....	5,000	70	28	2	.....	.....	.....
.....	5,400	56	43	.....	1	.....	.....
Average.....	6,700	63.7	33.3	1.2	1.2	.21	.035

No. 20.—*Leucocyte counts in 25 cases of typical influenza, United States Naval Hospital, Philadelphia, Pa., Sept. 26 to Oct. 26, 1918.*

W. b. c.	Poly-nuclear.	Small lymph.	Large lymph.	Mono-nuclear.	Trans-sitional.	Eosino-phile.	Baso-phile.
5,600	58	36	2	3	1	.....	.....
4,800	65	30	4	1	.....	.....	.....
6,300	68	20	7	3	1	1	.....
8,400	80	15	2	2	1	.....	.....
5,100	77	12	.....	6	5	.....	.....
8,000	65	15	5	10	5	.....	.....
8,000	77	10	.....	11	2	.....	.....
6,800	55	28	4	10	2	.....	.....
7,900	58	27	.....	12	.....	3	.....
3,500	80	8	6	4	2	.....	.....
6,300	80	20	.....	.....	.....	.....	.....
4,900	71	26	1	.....	2	.....	.....
7,000	79	12	6	3	.....	.....	.....
8,000	76	15	4	2	3	.....	.....
6,700	61	21	10	7	1	.....	.....
5,800	80	10	5	2	3	.....	.....
3,600	67	23	.....	7	3	.....	.....
6,500	63	29	.....	5	3	.....	.....
5,800	77	18	1	3	.....	1	.....
7,200	71	20	6	.....	2	.....	1
6,900	71	19	4	.....	3	2	1
7,100	73	22	3	1	1	.....	.....
5,900	69	22	4	.....	3	2	.....
6,000	71	19	4	.....	3	2	1
5,400	65	25	2	6	2	.....	.....
Average.....	69.5	19	3	4	2	1.5	1

TABLE No. 21.—*Leucocyte counts in 31 cases of influenzal pneumonia from ward, United States Naval Hospital, Chelsea, Mass, Sept., 1918.*

Case.	W. b. c.	Poly.	Lymph.	Trans.	L. mono.	Baso.	Eosin.	Ter at
1.....	26,200	81	18	1				
2.....	29,000	89	10	1				
3.....	14,600	73	26	1				
4.....	14,600	80	19			1		
5.....	13,600	71	24	3		2		
6.....	10,000	82	17	1				
7.....	37,000	75	20	1	2	2		
8.....	17,600	75	16	4	5			
9.....	29,900	91	8	1				
10.....	17,200	78	19	2	1			
11.....	10,000	78	20	2				
12.....	7,000	88	10	2				
13.....	13,000	80	20					
14.....	17,000	87	10	3				
15.....	13,600	86	12		2			
16.....	28,800	82	14	2	2			
17.....	4,600	78	19	2	1			
18.....	14,800	96	4					
19.....	12,600	70	28	2				
20.....	12,200	84	16					
21.....	7,800	67	29	3	1			
22.....	6,400	66	34					
23.....	7,400	53	46	1				
24.....	10,000	56	42	2				
25.....	3,600	84	16					
26.....	16,800	60	36	3			1	
27.....	6,800	56	40	4				
28.....	9,000	61	36	3				
29.....	12,200	82	16	2				
30.....	15,800	76	22	2				
31.....	19,400	78	18	2	2			
Average.....	13,980	76.23	21.45	1.61	.52	.16	.03	

TABLE No. 22.—*Leucocyte counts in 25 cases of influenzal pneumonia, United States Naval Hospital, Philadelphia, Pa., Sept. 26 to Oct. 26, 1918.*

W. b. c.	Poly-nuclear.	Small lymph.	Large lymph.	Mono-nuclear.	Transitional.	Eosino- phile.	Baso- phile.
22,600	95	2	1		2		
13,600	88	6	1	2	3		
12,100	75	3	3	9	6	2	2
16,000	77	13	4	1	3	2	
16,500	85	10		1	4		
12,000	89	3		4	4		
15,600	90	1	1	2	6		
49,900	86		1	1	12		
69,600	92	2		1	5		
24,300	87	2	2	4	5		
22,800	88	12					
14,000	86	7		2	5		
20,200	84	3	4	4	5		
19,000	91	2	1	1	5		
43,000	98	1		1			
25,600	82	10	1	2	5		
25,000	82	2	2	9	5		
28,600	92	3			5		
20,900	86	5		4	5		
17,500	77	20	1		1		
18,900	81	14		4	1		
19,600	78	12	5	1	3	1	
15,600	78	10	5	4	2	1	
23,800	82	16			2		
13,600	82	17			1		
23,212	85.24	7.04	1.23	2.32	3.8	.24	.08

*Urine.*—Reports indicate that serious renal complications were very rare. At the United States Naval Hospital, Great Lakes, albumin was reported present in about 20 per cent of the urines

amined. Casts were found only occasionally. Acute nephritis with bloody urine and edema occurred in 7 of 2,924 cases of influenza.

On board the U. S. S. *Solace* albumin and granular casts were found in the urine in about 10 per cent of the cases treated.

At the United States Naval Hospital, Philadelphia, Pa., in nearly all cases seriously ill the urine contained albumin and occasionally casts, but there was never acute involvement of the kidneys or evidence of serious renal changes. Functional kidney tests made with phenol-sulpho-phthalein were unsatisfactory and did not give any information of importance. There were a number of cases of retention of urine necessitating catheterization a few times. Of 2,130 urines examined, 614, or 28.8 per cent, contained albumin; 204, or 9.6 per cent, pus cells. Casts were present in 182 or 8.6 per cent. Passive congestion of the kidneys was common. The urine was diminished in quantity and usually showed only a trace of albumin, high specific gravity, a few hyalin and granular tube casts, and not infrequently a number of red blood cells. These findings were sometimes interpreted as indicating acute toxic nephritis, but clinically it was impossible to recognize evidence of uremia, the symptoms of which, if present, were merged in the picture of toxemia.

*Skin.*—Judging from Navy reports, lesions of the skin were neither common nor characteristic. Herpes of the face, erythema, purpuric spots, purpura hemorrhagica and eruptions more or less like those of scarlet fever and measles were mentioned in a few reports.

A report from the United States Naval Hospital, Philadelphia, Pa., states that a papular eruption was observed on the back and, to a lesser extent, on the front of the body in many cases upon admission to hospital or later during the course of the disease. The papules were frequently capped with minute pustules varying in size from pin point to pinhead.

Urticaria occurred not infrequently in cases where serum was used.

#### THE INCUBATION PERIOD OF INFLUENZA.

Numerous reports indicate that the period of incubation was 48 hours or less in cases where the time and place of exposure could be fixed with reasonable certainty. No report furnished evidence that the incubation period was greater than 48 hours but the possibility of longer periods can not be ruled out.

In the receiving ship at Norfolk, Va., (St. Helena), among 962 cases of influenza close observation indicated that the period of incubation varied from a few hours to two days.

At the United States Naval Hospital, Chelsea, Mass., the first cases from the first outbreak in Boston at Commonwealth Pier, (the receiving ship,) were admitted to hospital on Thursday afternoon, August 29, 1918. Blood counts, blood cultures, and throat cultures were made immediately by laboratory officers, one of whom developed influenza the following Saturday morning, and another medical officer who made the first physical examination was also attacked on Saturday.

While it is barely possible that both of these officers were exposed to a case of influenza several days before August 29 it is more probable that the disease developed from exposure on the latter

date. A chief pharmacist at the hospital whose duties had not previously brought him into contact with patients, accompanied an ambulance to Commonwealth Pier on that day and he developed influenza within 24 hours.

In Santiago, Dominican Republic, no case of influenza occurred among marines in barracks there until December 9, although several cases had been reported among natives by December 5. A quarantine against the town was in force at this time. On December 10, an officer who had contracted influenza in Puerto Plata became ill and was quarantined in his house. On December 11, a mail orderly who had been in contact with this officer became ill but did not report at sick call. Forty-eight hours after the arrival of the mail orderly in barracks, 15 men sleeping in his immediate neighborhood developed influenza. A common drinking cup was in use at the barracks. Another instance where the immediate source of infection could probably be traced relates to the telephone operator. These men stood 4-hour watches. One of them developed influenza and then four others came down in quick succession, each in about 46 hours after the termination of his watch.

At the officer material school, Princeton University, the medical officer had an unusually good opportunity to note the length of the incubation period in a considerable number of cases where the time of exposure could be quite definitely fixed. He concluded that the incubation period was just about 48 hours in practically all cases.

#### THE CAUSATIVE AGENT OF INFLUENZA.

Those who have engaged in studying the bacteriology of influenza and influenzal pneumonia during the pandemic are almost unanimously agreed that the causative agent has not been discovered. The Pfeiffer bacillus, pneumococci of all types, hemolytic streptococci and green producing streptococci, as well as other microorganisms commonly found in the mouth and in discharges from the respiratory tract—staphylococci, micrococcus catarrhalis, bacillus mucosus and spirochaetes—have been isolated from the sputum and from lesions in the lungs in varying percentages of cases.

*Pfeiffer bacillus.*—It is unnecessary here to record in detail the frequency with which this microorganism was found. The technique for its isolation in pure culture was not sufficiently understood generally either by bacteriologists in the Navy or in civil life at the height of the autumn epidemics to justify comparisons between the bacteriological findings in different epidemics and in different localities. Some workers who failed to find the Pfeiffer bacillus at first were able to isolate it in practically all cases after they had been set right by those who had adopted a suitable technique. At some naval stations the bacillus was found in practically all cases of influenza—often early in the disease—and was isolated from the lung tissues in from 60 to 80 per cent of fatal cases of influenzal pneumonia. In a considerable percentage of such cases it was the only microorganism recovered. In a few instances it was found in blood cultures taken during life and in cultures from the meninges in cases of complicating meningitis. However, it was not found in all cases even by those who had demonstrated their knowledge of a reliable technique and in some epidemics it was either absent or

seldom recovered. As described below, experimental attempts to produce the disease signally failed. Studies in immunity gave various results but furnished no evidence that a single strain was being recovered in different epidemics or even from different cases in a local outbreak. The ability to produce agglutinins was variable and frequently with the identical strain no agglutinins could be detected in the serum of patients from whose sputum the bacilli were isolated, even though they were found in large numbers and in phagocytic cells from the lungs. In many instances agglutinins could not be demonstrated in the serum of animals after thorough attempts to immunize them had been made. In instances where a serum would agglutinate its particular strain it not infrequently failed to agglutinate bacilli recovered from another case of influenza in the same local epidemic although agglutination would occur with a serum specific for the latter strain.

Altogether, evidence was furnished for the belief that many strains of the Pfeiffer bacillus were associated with the epidemic but that no strain predominated. It seems clear that the Pfeiffer bacillus as an early secondary invader took an important part in causing the lesions of mixed infection in many cases, as it probably did in the 1889, 1890, 1891, and 1892 epidemics.

*Pneumococci and streptococci.*—No particular type of pneumococci predominated in different epidemics and frequently the type recovered from pulmonary lesions in fatal cases occurring in the same epidemic varied. In some epidemics, notably those in battleships of the Atlantic Fleet and in stations in the vicinity of Norfolk, Va., pneumococci appeared to predominate as secondary invaders and to be responsible largely for the fatalities. In most epidemics both pneumococci and streptococci were found in cultures from the lungs, and frequently pneumococci of one or more types and streptococci were recovered together from the same case. Sometimes during a prolonged epidemic pneumococci were found in a high percentage of the fatal cases at one stage, and later were found infrequently while streptococci predominated. In other epidemics, notably those among naval organizations at Puget Sound, and in Seattle, Wash., a streptococcus appeared to be responsible almost altogether for the pneumonias. This appeared to be a single strain which tended to grow as a diplococcus and produced a moderate amount of green in cultures. Sometimes it caused hemolysis and sometimes it did not. It might easily have been confused at times with certain strains of Type IV pneumococci. It was probably the same microorganism as the coccus described by Mathers. Satisfactory evidence that there was but a single strain was not furnished.

The general conclusion which might be drawn from investigations carried on in many naval laboratories is that whatever the causative agent of influenza may be and the likelihood that the virus itself was primarily responsible for influenzal pneumonia as well as for the lesions in mild uncomplicated cases, hemolytic streptococci, a strepto-pneumococcus-like microorganism, the Pfeiffer bacillus, and pneumococci of different types were severally and collectively responsible to a large extent for the severity of complications in most of the fatal cases of the disease. It would appear altogether probable that without successful invasion by streptococci or pneumococci,





may be assumed that the disease is highly communicable and that it spreads both by direct and indirect contact of healthy persons with patients. It may be that the virus is carried by healthy persons, but this can neither be proved nor disproved at the present time. Many of the cases of influenza are so mild that the infected individual is able to go about his business and is thus capable of spreading the disease.

Just after the crests of the earlier epidemics were reached two series of experiments were authorized by the Navy Department under arrangements made by the Bureau of Medicine and Surgery in cooperation with the United States Public Health Service for the purpose of determining, if possible, the mode of transmission of influenza as well as the causative agent.

*Boston experiments.*—These experiments were carried on jointly by Lieutenant Commander M. J. Rosenau, Medical Corps, United States Naval Reserve Force, and Lieutenant W. J. Keegan, Medical Corps, United States Naval Reserve Force, and by Surgeon J. Goldberger and Assistant Surgeon G. C. Lake, United States Public Health Service, at the United States Quarantine Station, Gallups Island, Boston, Mass. The subjects of experiment were 68 volunteers from the United States Naval Detention Training Camp, Deer Island, Boston. These volunteers had been exposed in some degree to an epidemic of influenza at the training camp or at some station prior to coming to Deer Island; 47 of the men were without history of an attack of influenza during the recent epidemic, and 39 of these were without history of an attack of such illness at any time during their lives.

The experiments consisted of inoculations with pure cultures of Pfeiffer's bacillus, with secretions from the upper respiratory passages, and with blood from typical cases of influenza. The study was begun November 13 with an experiment in which a suspension of a freshly isolated culture of Pfeiffer's bacillus was instilled into the nose of each of three nonimmunes and into three controls who had a history of an attack in the recent epidemic. None of these volunteers showed any reaction following this inoculation. Another experiment was made at a later date with a suspension of a number of different pure cultures of Pfeiffer's bacillus, of which four were recently isolated. Ten presumably nonimmune volunteers were inoculated with the same negative results.

Three sets of experiments were made with secretions, both unfiltered and filtered, from the upper respiratory tract of typical cases of influenza in the active stage of the disease. In these experiments a total of 30 men were subjected to inoculation by means of spray, swab, or both, of the nose and throat. The interval elapsing between securing secretions from the donors and inoculation of the volunteers was progressively reduced in these experiments, so that in the third of the series the interval at most was 30 seconds. In no instance was an attack of influenza produced in any of the subjects. An experiment was made in which the members of one of the groups of volunteers which had been subjected to inoculation with secretions were exposed to a group of cases of influenza in the active stage of the disease in a manner intended to simulate conditions which in nature are supposed to favor the transmission of the disease. Each of this group of 10 volunteers came into close association for a few

the infectivity of which had been greatly heightened under the existing conditions of war, the case-fatality rates associated with 1918 autumn epidemics would have been no higher than in epidemics occurring during previous pandemics.

As bearing on the heightened virulence of the causative agent of influenza during a primary epidemic, and possible attenuation subsequently, the following study made at the marine barracks, Quantico, Va., is of interest:

Of the men admitted to sick list with diagnosis of influenza during the first three weeks of the primary epidemic, 4.1 per cent died, while the case-fatality rate for cases admitted during the next three weeks was only 2.6 per cent. In the fifth week of the epidemic there were 3 deaths in 94 cases and these were in men who had recently arrived. In the sixth and seventh weeks 166 cases of influenza were admitted to hospital, with no deaths. Of this number about 100 were men who had recently arrived in good health, and subsequently contracted infection at Quantico.

It might be inferred from these facts that the microorganism which caused the epidemic at Quantico gradually became attenuated, and that notwithstanding the introduction of susceptible persons from the outside the case-fatality rate was nil.

During the eighth week after the beginning of the primary epidemic the disease again became prevalent and the case-fatality rate rose suddenly to 6 per cent during the week ending November 4. Investigation showed that a draft of 958 men had arrived from Parris Island, S. C., on October 27, 1918, and that immediately upon arrival 50 cases of influenza were admitted to hospital from the draft.

Many other cases subsequently appeared. The draft may have brought with it a virulent strain of the causative agent which has not yet become attenuated. The following is an attempt to show the data in tabular form:

	Week of—								
	Sept. 9-16.	Sept. 17-23.	Sept. 24-30.	Oct. 1-7.	Oct. 8-14.	Oct. 15-21.	Oct. 22-28.	Oct. 29- Nov. 4.	Nov. 5-11.
Total cases admitted	163	952	714	301	94	36	130	218	268
Died	9	34	38	13	3			13	12
Case-fatality rate....	5.5	3.6	4.6	4.3	3.2			6.0	4.4
	4.1			2.6				5.1	
	Quantico strain.							Parris Island strain.	

<sup>1</sup> A death is charged to the week during which the deceased was admitted to hospital as a patient, though the death may have occurred later.

#### MODES OF TRANSMISSION.

While it is presumed now, just as it was before the pandemic, that the causative agent of influenza is transmitted from person to person either directly or indirectly, by moist secretions or fresh discharges from the mouth and nose no proof of this has been forthcoming.

may be assumed that the disease is highly communicable and that it spreads both by direct and indirect contact of healthy persons with patients. It may be that the virus is carried by healthy persons, but this can neither be proved nor disproved at the present time. Many of the cases of influenza are so mild that the infected individual is able to go about his business and is thus capable of spreading the disease.

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minutes with each of 10 selected cases of influenza in the wards of the United States Naval Hospital, Chelsea. At the time the volunteers were exposed to this infection the cases were from 10 to 24 hours from the onset of their illness and 4 of them were not more than 24 hours after the onset. Each volunteer conversed a few minutes with each of the selected patients, who coughed into the face of a volunteer in turn, so that each volunteer was exposed in this manner to all 10 cases. The total exposure amounted to about three quarters of an hour for each volunteer. None of these volunteers developed any symptoms of influenza following this experiment.

Advantage was taken of the opportunity for making this study to attempt to confirm the reported positive results of transmission of influenza by Nicolle. Secretions from five typical cases of influenza were secured, filtered, and some of the filtrate inoculated subcutaneously into each of a group of 10 volunteers. At the same time blood was drawn from the same cases and pooled, and some of the mixed blood injected subcutaneously into each of another group of 10 volunteers. The time lost between drawing the blood and inoculating it in no case exceeded three quarters of an hour. None of the men subjected to these inoculations developed any evidence of illness.

In the foregoing experiments the patients serving as donors belonged to groups from epidemic foci either on shipboard or at institutions. The great majority indeed belonged in a group from an epidemic on board the U. S. S. *Yacona*. Of the personnel of this vessel, 95 in number, 80 or 84 per cent, were stricken with the disease in an epidemic between November 17 and 29.

*San Francisco experiments.*—The following observations were carried out practically simultaneously with those described above. The work was done at the Angel Island Quarantine Station, San Francisco, Cal., utilizing volunteers from the Yerba Buena Naval Training Station, San Francisco. The experiments were carried out jointly by Surgeon G. W. McCoy of the United States Public Health Service, and Lieutenant De W. G. Richey, Medical Corps, United States Naval Reserve Force. The volunteers who were used in these experiments differed from those used at Boston in two respects:—first, the personnel of the Yerba Buena Station had not been exposed to influenza in the present epidemic and were therefore presumed not to possess any special natural immunity; second, all of the men had been vaccinated with large doses of a bacterial vaccine containing Pfeiffer's bacilli, the three fixed types of pneumococci and hemolytic streptococci. It is impossible at present to state what influence this vaccination may have had in promoting resistance to influenza infection, but to judge by the results of controlled experiments elsewhere such vaccination may for the present purpose be ignored.

Brief details of the experiments are as follows:

*Work with cultures.*—A group of 10 volunteers was divided into two equal squads. One group had instilled into the nostrils of each man a heavy suspension made by emulsifying cultures of each of the strains of Pfeiffer's bacillus without filtration. The other group had the same material used after passage through a Berkefeld N-candle. The results were negative, though the men were held under observation for seven days.

*Work with secretions.*—Four groups of volunteers, of 10 men each, were used for these experiments. Emulsions of secretions from the upper respiratory passages of active cases of influenza from 15 to 48 hours from the onset were instilled into the nose by means of a medicine dropper, or with an atomizer. In each experiment approximately an equal number of volunteers were treated with the same emulsion after filtration through a Berkefeld N-candle. In every case the results were negative, so far as the reproduction of influenza is concerned. The men were all observed for seven days after inoculation. In three cases in which unfiltered material had been instilled sore throat developed which corresponded clinically with acute tonsillitis, and in two of these cases an almost pure culture of a hemolytic streptococcus was secured from throat cultures.

A filtered emulsion of material from the upper air passages of an acute case of influenza was dropped into the conjunctivae of two volunteers and the same material injected subcutaneously into one volunteer. In each case the result was negative.

One cubic centimeter of blood taken during the active stage of influenza was inoculated subcutaneously into one volunteer with negative results.

In all of these experiments the time between the collection of the material from the patient and its inoculation into the volunteers was in the neighborhood of three or four hours. The conditions under which it was necessary to conduct experiments did not permit of a shorter interval. The unfiltered suspensions which were used were submitted to cultural examination after inoculation and found to contain living organisms as follows: Pfeiffer's bacillus, pneumococci of Group IV, and hemolytic streptococci.

Unfortunately, although performed with the utmost care upon a large number of volunteers, none of these experiments furnished any conclusive evidence in spite of the fact that attempts to transfer the disease were made in the freest possible manner. However, the results obtained in these studies certainly seem to invalidate the conclusion reached in previous filtration experiments in which controls had not been thought necessary.

The outstanding facts are that all attempts to transfer the disease from patients ill with influenza in the acute stages, from 10 to 84 hours from the onset of symptoms, failed. The direct exposure of volunteers in the hospital ward, each volunteer to several influenza patients, thus affording opportunity for transmission of the disease by what has been presumed to be the natural and usual method of dissemination, as well as the promptness with which fresh moist secretions were transferred from patient to volunteer, and the precaution to make subcutaneous inoculations with pooled blood and pooled nose-and-throat secretions from patients acutely ill would appear to leave little to be desired in respect to the completeness with which this research work was performed. Further attempts were made later in Boston to secure more conclusive results by obtaining secretions from patients in the very early stages of the disease, but these subsequent experiments led to findings which were scarcely more definite than those described.

Negative as the results of these experiments were the work itself was of the utmost importance and it serves well to check the gener-

ally entertained belief that the transmission of an acute communicable disease of the respiratory type is a very simple matter. While the transfer of the causative agent of such a disease from one individual to another may reasonably be assumed to take place commonly by means of the "droplet spray" directly, as well as indirectly, by means of a freshly contaminated article, such as a drinking utensil or by the fingers which have touched a contaminated article, it is nevertheless probable that immunological conditions play the most important part and that the time of exposure has a determining influence as well as the duration of exposure, the immunological state of the patient (aggressiveness of the causative microorganism) and the immunological state of the person exposed. From the results obtained in these efforts to transmit the disease, influenza especially would appear to require particular conditions for its transmission and yet the gross epidemiology of the disease indicates that it is highly communicable and spreads promptly wherever it is introduced.

Practically all persons who have not had influenza appear to be susceptible to an attack although not necessarily a severe one. Perhaps a majority of those who had the disease in previous years experienced an attack in 1918, if not in severe form at least as a transient mild infection. On the other hand, as pointed out above, many persons in the Navy who had influenza in mild form during the spring months escaped an attack in the autumn of 1918, although there were also many exceptions.

It was reported from the U. S. S. *Nashville* that cases which developed during the autumn epidemic in the United States were even milder than those which occurred during the spring and summer epidemics in European waters. All new cases developed in men received on board after returning to the United States. No man who had had the disease in Europe was attacked.

In the Seventh Regiment of Marines, stationed at San Juan, Santiago de Cuba, during a recurrent epidemic of influenza it was observed that the Ninety-third Company suffered heavily. During the primary epidemic the greatest numbers of cases occurred in the Seventy-first and Fifty-ninth and but few cases occurred in the Ninety-third Company, although it was camped immediately alongside the others. During the recurrence few cases occurred in the other two companies. Several instances of second attacks of influenza in the same individuals were noted, but not in severe or serious form.

With regard to a recurrent outbreak of influenza which occurred at the United States Naval Training Station, Great Lakes, Ill., the following interesting observations were made:

Following the receipt of men from Camp Logan and from the receiving ship at Philadelphia, Pa., after the primary epidemic had passed, both of these stations also having passed through epidemics, there was no noticeable increase in the incidence of influenza at the Great Lakes Station and it was assumed that the new arrivals, who were presumably immune in both instances, either did not bring infection with them or that the station force was also immune by reason of the recent epidemic. On October 27 and October 30 recruits were received from the cities of Atlanta, Meridian, Richmond, Baltimore, Pittsburgh, Nashville, Louisville, and New Orleans. Following their arrival a second outbreak of influenza occurred at the station on November 2, lasting until November 9. During this period 200 cases of influenza occurred, but the disease was

confined entirely to recruits from the above-mentioned cities, none of whom had been in camp over five days when attacked, and many were taken ill on the train before arrival. The fact that men who had been on the station for a longer period did not take the disease would indicate immunity.

In the receiving ship at Norfolk, Va., it was noted that only two cases of influenza occurred among the many negro mess attendants quartered on the station during the epidemic.

On the whole it may be concluded that immunity to some degree is conferred by an attack in most instances, but statistics so far have failed to furnish definite knowledge as to the duration of such immunity. It is noteworthy that influenza in the past has recurred in a community year after year for several years in epidemic form following a pandemic, in spite of the fact that from 20 to 30 per cent of the population was attacked during the primary epidemic. It is difficult to believe that some at least of the young adults who developed influenzal pneumonia and quickly succumbed to this complication had not had influenza in a previous year.

Epidemiological studies in civil life indicate that the highest incidence during the fall epidemics was among children and adolescents who, presumably, represented the age groups least likely to have been exposed in previous years. The incidence curve declined steadily through age groups beyond 35, yet no age group proved immune. The children frequently had very mild attacks and epidemic death rates among adolescents and children of school age seem to have been remarkably low. The general death rate among very young children and infants under one year was high during the epidemic, but how many of the deaths were actually due to influenza infection is not yet clear.

The medical world should appreciate the spirit and bravery of the men of the Navy who eagerly subjected themselves to experimentation for the welfare of humanity, for they were warned specifically and they had every reason to believe, as did those who conducted the research work, that they were risking their lives. These volunteers have indeed rendered service to their country and to the world, and the fortunate circumstance that none was seriously harmed does not detract from the significance of this exhibition of high personal courage and of the willingness displayed by all of them to sacrifice themselves for others.

Following is the list of men who volunteered during the Boston experiments:

Abney, Dewey Lavern.	Foster, John.
Allan, Robert Andrew.	Fournier, Ernest Joseph.
Anderson, Arthur Raymond.	Garriott, Simon George.
Bolduc, Joseph Real.	Gerow, Percy Hector.
Bullock, Muro Chester.	Gibson, Edward Molten.
Calabrese, James Joseph.	Goodwin, R. E.
Center, Edward Thomas.	Healy, Thomas B.
Colton, Charles.	Hedges, Daniel Judd.
Conroy, H. A.	Kearney, Eugene Aloysius.
Crist, Bertram.	Kilent, Thomas.
Crowley, Henry Edward.	Malone, Walter James.
Denaard, Arthur Frederick.	Marcum, Charles.
Edman, Charles Frederick.	Maas, Paul Alfred.
Engert, Henry Joseph.	Morrell, William Francis.
Felton, James Elwyn.	Murphy, Leonard Richard.
Fleming, George William.	Murphy, William Joseph.



McAnneny, John Henry.  
 McKenna, Joseph Edward.  
 Nerling, Gustave.  
 Ortiz, Julius.  
 O'Toole, Frank Codman.  
 Peak, George Francis.  
 Pruett, George.  
 Reid, Robert Lincoln.  
 Scott, Robert James.  
 Slipp, Clarence.  
 Stanton, Judson Horatio.  
 Vandermeer, John William.  
 Vanelli, Arthur Nicholas.  
 Veteto, Gus Robert.  
 Vieira, Leopold Joseph.  
 Wanless, Frank B.  
 Heine, John Joseph.  
 Hill, Warren Arthur.

Holmes, Harrison Stephen.  
 Aimar, Bertram Hillard.  
 Crews, Millard.  
 Dawson, Harvey Allen.  
 Fink, Herbert Jacob.  
 O'Neill, Nick Persian.  
 Evans, Hugh John.  
 Holziner, Carl Peter.  
 Warren, Robert Flagg.  
 Whipp, Raymond Calvin.  
 Walker, E. F.  
 Hickey, Edward John.  
 Jones, Orlando Lloyd.  
 Lang, William Norman.  
 Myers, Fred.  
 Balbian, Frederick.  
 Campbell, Verlin Everett.  
 Micks, Albert.

The following men volunteered for the experiments at San Francisco:

Leggett, James Verna.  
 Oldham, George W.  
 Egan, Estis Theodore.  
 Harrell, Lewis Roy Kendall.  
 Toombs, Herbert Edgar Lawrence.  
 Workman, Lester.  
 Thomas, Franklyn Forrest.  
 Bennett, J. C., jr.  
 Combs, Lester Robert.  
 Swan, George.  
 Mulcahey, Daniel Vincent.  
 Taylor, Christopher Anthony.  
 Lester, Roy.  
 Le Duc, Antonio Oliver.  
 Wages, Vern.  
 Wall, Lewis Edward.  
 Lind, Clifford Charles.  
 Crane, Ellis Madison.  
 Thompson, Arthur Eugene.  
 Alsott, Charles Benson.  
 Lipinski, William.  
 Tomlins, Roy Lee.  
 Tegerson, William.  
 Nardoni, A. M.  
 Miller, Frank A.

Burton, Clyde.  
 Dulaney, Floyd Marcue.  
 Eskew, Herman Virgil.  
 Hammer, Adolph.  
 Shankle, John Swanson.  
 Tharp, Robert Herman.  
 Autry, Charlie Lester.  
 Breco, Davis.  
 Casson, Jesse Meredith.  
 Fisher, Earl.  
 McLaughlin, Joseph Francis.  
 Lorenz, Joshua H.  
 Hickson, Samuel Dewey.  
 Morrow, Ernest James.  
 Stephenson, Neato Augusta.  
 Hearing, Elvin.  
 Bertelsen, Hans.  
 Dickenson, Lester William.  
 Bennett, Ray Ernest.  
 Howard, Fred Elmer.  
 Christian, Lester O.  
 McGaughy, Oscar A.  
 Morrison, M. C.  
 Callison, George A.  
 Hosey, R. L.

#### PREVENTIVE MEASURES.

First and last, all preventive measures which seemed logical, either from *a priori* reasoning or because of seemingly good effects claimed for them elsewhere during the year or in previous epidemics, were tried in the Navy.

These included quarantine, daily inspection of personnel and the taking of temperatures, early isolation of the sick, the wearing of face masks and gowns and rigid aseptic technic by attendants upon the sick; the early transfer of patients to a base hospital; the retention and isolation of patients in dispensaries where they could be segregated in small groups instead of being brought into immediate or in direct contact with large numbers of other patients; strict attention to ventilation, relief of overcrowding, use of muslin screens between bunks or hammocks in barracks; prevention of gatherings indoors as much as possible; restrictions on travel, particularly by common car-



rier; the application of nose and throat sprays to those not yet attacked; the use of prophylactic vaccines, the very general and intensive use of educational measures, and the rigid enforcement of sanitary rules and regulations with particular regard to personal hygiene, cleanliness, care of floors and decks, windows, and other ventilating inlets and outlets, mess gear, drinking utensils, drinking fountains and other articles liable to contamination with mouth and nose discharges of patients or carriers. The protection of influenza patients during convalescence, even those having mild attacks, was generally regarded as an important preventive measure. The therapeutic use of serum donated by patients convalescing from influenzal pneumonia was given a somewhat extensive trial in attempts to reduce influenzal pneumonia case-fatality rates.

Speaking in general terms, the history of influenza in the autumn of 1918 shows that the disease spread rapidly and progressively, attacking communities of all sizes regardless of preventive measures put into effect, and regardless of geographical location, climate, weather, nature of the industries, race, density of population, habits of the people, character of housing, habits of diet, social and economic conditions, sanitation, soil conditions, flora and fauna, or routes and modes of travel.

Naval stations varied greatly in size and density of population as well as with regard to geographical location, environment, and the nature of activities carried on. Strong efforts were made at all stations and on board all vessels to prevent the introduction of the disease and to limit its spread by the enforcement of all preventive measures which were practicable under war conditions. Attention was paid universally to sanitation, education of the naval personnel, ventilation, proper care of mess gear, and early treatment of the sick. Relief of overcrowding was possible in some places; in others, not. Under the necessity of fighting the war it was usually deemed impracticable to establish quarantine of any degree or to prevent intercommunication with civil communities and other naval stations. At different stations various special preventive measures were tried, such as vaccines, use of face masks, daily or twice daily use of prophylactic nose and throat sprays, and putting the men into tents.

Epidemic incidence rates, epidemic death rates, and case-fatality rates varied considerably at different shore stations and among different forces afloat, as the statistical data show. Not infrequently certain specific measures which were credited at one station with having prevented the spread of influenza or with having reduced the complications or with having kept case-fatality rates low failed to prove of any value at another station. So many epidemiological factors were or might have been involved in every instance that it is quite impossible to judge what factors were operative at a given station or to what preventive measures low rates could be definitely attributed when they occurred. It may be said, however, that each of the preventive measures enumerated was thoroughly tried, in conjunction with other measures of course, at some one or more stations where the incidence of influenza was high and the epidemic severe. In other words, each particular preventive measure failed in some instances to accomplish recognizable results.

It should be remarked that influenza was regarded as a disease of the respiratory type disseminated by moist discharges from the

mouth and nose, and the preventive measures applied were those which have come to be looked upon as valuable in preventing the spread of any acute communicable disease of the respiratory type. With the exception of absolute quarantine at the United States Naval Training Station, San Francisco, these measures proved of little or no appreciable value in the presence of epidemic influenza.

The experience of 1918 would indicate that a very important preventive measure when confronted with an outbreak of influenza consists in rapidly enlarging existing medical and nursing facilities for the proper care and treatment of the large numbers of persons who will inevitably be attacked regardless of measures planned to prevent the occurrence or spread of the disease.

*Quarantine.*—Absolute quarantine was imposed at the United States Naval Training Station, San Francisco, on September 23, before the introduction of influenza. All officers, enlisted men, and civilians were recalled and required to remain on the island. All communication with San Francisco and Oakland was discontinued except to receive supplies and recruits or other men who reported as necessarily had to be received. Precautions were taken to prevent the crews of tugs from approaching persons on the dock closer than 20 feet. All recruits and others who had to be received from the mainland had the pharynx and nasal passages thoroughly sprayed with a 10 per cent solution of silvol and were required to put on gauze face masks before they were allowed to board the tug bound for the island. Upon arrival they were placed in a quarantine camp for several days, during which they wore masks, were sprayed three times a day with silvol, and were required to keep at a distance of 10 feet from each other.

The entire personnel of the station—officers, enlisted men, and civilians—were required to have the pharynx and nasal passages sprayed once daily with a 10 per cent solution of silvol. All drinking fountains were flamed with a gasoline torch, and all telephone transmitters were disinfected twice daily. In barracks each cot was provided with a muslin screen extending around the head and along one side, 30 inches above the level of the cot. A part of the personnel was quartered in tents. Outdoor recreation was provided.

This was not a pure quarantine experiment. The entire personnel was inoculated with three successive doses of a mixed bacterial vaccine administered October 12, 15, and 18, respectively. This vaccine contained per c. c.:

Pfeiffer bacillus, Rockefeller strain.....	5,000,000.0
Pneumococcus Type I, various strains.....	3,000,000.0
Pneumococcus Type II, various strains.....	3,000,000.0
Pneumococcus Type III, one strain.....	1,000,000.0
Streptococcus hemolyticus, two strains.....	100,000.0

The three doses were 0.5 c. c., 0.8 c. c., and 1 c. c., respectively.

While quarantine was in effect no case of influenza occurred on the station, although all other naval stations on the Pacific coast, as well as civilian communities, experienced epidemics during this period. The disease made its first appearance at the station on December 16 days after quarantine was raised.

In the city of San Francisco the primary epidemic began during the week ending September 21, reached its height during the week ending October 5, and subsided rapidly. This epidemic, as indicated

by epidemic death rates, was of about the same duration and severity as those which occurred in Boston, Mass., and Washington, D. C., in spite of the fact that somewhat drastic ordinances and regulations, which included the compulsory wearing of face masks on the street, were adopted; measures which the cities in the East did not see fit to undertake. A rather sharp recurrent epidemic began in the city during the week ending December 14, and the weekly death rate did not reach an approximately normal level until after the week ending March 8, 1919.

At the United States Navy Yard, Mare Island, Cal., very practical precautions were taken as early as September 23 against the introduction and spread of the disease. Absolute quarantine was not feasible but a modified quarantine was ordered. The epidemic in the Mare Island navy yard began October 4, and reached its height in the latter part of the month. The incidence diminished one half in November, but the epidemic period lasted until November 30.

To the absolute quarantine efficiently maintained on Goat Island must be attributed the entire absence of influenza from this training station while all communities in the vicinity were suffering. After free communication was resumed with San Francisco and Oakland on November 21 the disease was introduced, and during the month of December 148 cases of acute bronchitis, 13 of broncho-pneumonia, 4 of lobar pneumonia, and 25 cases of influenza were reported. Doubtless some at least of the cases reported as broncho-pneumonia were true cases of influenza, and judging from the incidence of pneumonic complications at other stations it is altogether probable that at least 100 cases of influenza occurred. The experience at this station seems to show that under exceptional conditions quarantine can be made effective against the introduction of influenza, but that after quarantine is raised the disease will make its appearance with an incidence proportionate to that obtaining at the time in the surrounding territory. Beyond question, life was saved there by the absolute quarantine.

Deaths from influenza and all forms of pneumonia, during the year 1918, occurred at the United States Naval Training Station, San Francisco, as follows:

Week ending—	Influenza (Influenza pneumonia).	Pneumonia.	Week ending—	Influenza (Influenza pneumonia).	Pneumonia.
Apr. 4.....		1	Oct. 18.....		1
July 7.....		1	Dec. 4.....		1
Aug. 21.....		1	Dec. 22.....	2	1
Aug. 28.....		1	Dec. 28.....	1	1

Unfortunately for epidemiological purposes, the issue was clouded by the fact that the entire personnel received three doses of mixed bacterial vaccine. It is possible, even probable, that such a vaccine would reduce the percentage of pneumonic complications and case-fatality rates in so far as due to secondary invasion by the micro-organisms represented, but the evidence adduced elsewhere indicates that the vaccine would not protect against influenza. This was the experience at the marine barracks, Parris Island, S. C.; at Quantico,

Va.; at the United States Naval Training Camp, Pelham Bay Park, N. Y., and at the United States Naval Training Station, Great Lakes, Ill. Moreover, among 200 men received at the United States Naval Training Station, Mare Island, in a draft from the United States Naval Training Station, San Francisco, at 9 p. m., December 5, three of them were found ill with influenza at 8 a. m., December 6, and during the evening of the same day three additional cases were discovered. On the following day 16 cases developed, making a total of 22, or 11 per cent of the draft, attacked in about 48 hours. This is of interest in connection with the San Francisco experiments discussed on page 429.

It was the opinion of medical officers at the station that spraying of the nose and throat could be eliminated as preventing the disease because it was used before, during, and after the appearance of influenza cases.

A modified quarantine was imposed at many naval stations. Variably this measure failed to prevent the introduction of influenza. Influenza proved to be so highly communicable that nothing short of absolute quarantine appeared to have any effect whatever upon the incidence of the disease. At some stations where liberty was restricted and communication with outside sources was reduced to a minimum the epidemic was severe and the attack rate high, while at other stations where similar measures were adopted escaped light.

The United States Naval Training Camp at Pelham Bay Park furnished an example of the apparent futility of preventive measures against influenza. This station was planned and built in accordance with modern ideas along the lines of preventive medicine. The barracks were comfortable and well ventilated and the men were quartered in comparatively small units. There was a well appointed and administered detention camp, with separate dispensaries and mess halls. A modified quarantine was in effect at the station. In spite of this the attack rate, the epidemic death rate, and the case-fatality rate were all considerably higher than at the Federal rendezvous at a large armory in a thickly settled section of Brooklyn, N. Y., where the complement was constantly shifting, and where the crew of 1,000 men was berthed in a single large room. No restrictions whatever were imposed on visiting and liberty, because it was not practical to do so. According to all the tenets of epidemiology this station should have suffered worse than the training camp at Pelham Bay Park, situated at the extreme edge of the city limits in a more or less isolated position.

*Vaccines.*—Experiments in prophylaxis were conducted at various naval stations almost from the beginning of the severe epidemic of the fall of 1918, with vaccines made from pure cultures of Pfeiffer bacillus; with hemolytic streptococcus and with mixed vaccines containing the three fixed types of pneumococci and several strains of Type IV pneumococci with or without streptococci and Pfeiffer bacilli. Experiments with the Pfeiffer bacillus lead to the conclusion that no protection against influenza was afforded by bacterins prepared from strains of this microorganisms recovered from the lungs in cases of influenzal pneumonia. Altogether, many thousands of men were vaccinated, with the inevitable result that much conflict of opinion arose from the fact that many individuals vaccinated were not subsequently attacked by influenza. Unless pro-

erly controlled, vaccination experiments were without value. In the following instances controls were used: Five hundred and fifty-four men in the "incoming detention camp" at the training camp, Pelham Bay Park, N. Y., were given three inoculations of a Pfeiffer bacillus vaccine prepared at the United States Naval Hospital, Chelsea, Mass., and administered in three successive doses, 0.5 c. c., 1 c. c., and 1 c. c. of a well clouded but not counted bacterin. The third inoculations were completed October 5, 1918. On October 10, the 554 inoculated men, together with 800 controls, who had also been held in the incoming detention camp, were released into the main camp. At the time of their release the incidence of influenza in the main camp was decidedly on the decrease and opportunity to contract infection was less than at the height of the epidemic. Nevertheless, 50, or 9 per cent, of the vaccinated men contracted the disease, while only 40, or 5 cent, of the controls became infected.

Several thousand men were vaccinated at the marine barracks, Parris Island, S. C., in the latter part of October; some with a Pfeiffer bacillus vaccine prepared at the United States Naval Laboratory, Philadelphia, Pa., and some with a similar bacterin which included strains of the Pfeiffer bacillus recovered from patients in the United States Naval Hospital, Chelsea, Mass., prepared at the Hygienic Laboratory, Washington, D. C. Many of the men inoculated were transferred overseas shortly afterwards, and their subsequent histories could not be ascertained. However, a draft of 756 men transferred from Parris Island, S. C., in the early part of November came under observation at the marine barracks, Quantico, Va. Of these, 304 had not been vaccinated, and 39, or 12.8 per cent, contracted influenza within a week after arriving at Quantico. Four hundred and fifty-two men of this draft had received from one to four inoculations of Pfeiffer bacillus vaccine while at Parris Island, and 72, or 15.9 per cent, contracted influenza as follows:

After one inoculation, 11 of 75 men (14.6 per cent) contracted influenza.  
 After two inoculations, 30 of 226 men (13.2 per cent) contracted influenza.  
 After three inoculations, 8 of 57 men (14.0 per cent) contracted influenza.  
 After four inoculations, 23 of 94 men (24.4 per cent) contracted influenza.

A study of the severity of the disease in those not vaccinated, in comparison with those who had received vaccine, indicated that vaccination had no marked influence upon the course and severity of the attack. This conclusion was based on observation of 200 cases of influenza in men who had recently arrived from Parris Island, S. C. The findings were as follows:

Number of cases with no prophylactic inoculation.....	92
Number of cases with one inoculation.....	29
Number of cases with two inoculations.....	40
Number of cases with three inoculations.....	9
Number of cases with four inoculations.....	30
<b>Total number of cases.....</b>	<b>200</b>
<b>Mild cases:</b>	
No vaccine.....	47
With vaccine prophylaxis.....	57
<b>Total cases.....</b>	<b>104</b>

## Moderate cases:

No vaccine .....

With vaccine prophylaxis .....

Total cases .....

## Severe cases:

No vaccine .....

With vaccine prophylaxis .....

Total cases .....

Observation of 281 influenza patients treated in the United States Naval Hospital, Philadelphia, Pa., between October 6 and October 26, 1918, 60 of whom had previously been vaccinated with Pfeiffer bacillus bacterin and 221 not, seemed to show that the incidence of pneumonic complications was decidedly lower in the vaccinated. No trustworthy evidence was presented that Pfeiffer bacillus vaccine had any value as a therapeutic agent.

A streptococcus vaccine was used extensively in the third naval district where responsibility for pulmonary complications and deaths was attributed principally to the microorganism from which the bacterin was prepared. At first regarded as an ordinary hemolytic streptococcus this microorganism was later found to have characteristics similar to those of the Mathers coccus as mentioned in reference to microorganisms associated with influenzal pneumonia.

The following table indicates the results obtained by the use of this vaccine which was prepared from microorganisms isolated from the blood of living patients and from the tissues in fatal cases. Cultures were nearly always pure. The microorganism could be obtained from the sputum of almost any case and was practically always found in the lung tissues at post-mortem examination. The microorganism easily lost its virulence and hemolytic properties on culture at 37 C. and was sometimes indistinguishable from a coccus. Proof that there was but a single strain was not furnished and it is not unlikely that the vaccine contained more than one strain. Three doses were administered 48 hours apart, 0.5 c. c. (250,000,000), 1 c. c. (500,000,000), and 1 c. c. (500,000,000).

	Complement.		Cases.		Per cent attacked.		Deaths.		Case-fatality per cent.
	Vaccinated.	Unvaccinated.	Vaccinated.	Unvaccinated.	Vaccinated.	Unvaccinated.	Vaccinated.	Unvaccinated.	Vaccinated.
Philadelphia unit.....	131	855	37	168	28.2	19.6	0	21	0
Seattle Training Camp No. 1.....		4,159		813		19.5		33	
Seattle Training Camp No. 2.....	662		11		1.60		0		0
Seamen's barracks, Puget Sound.....	2,800	3,472	57	428	2.03	12.3	0	42	0
Marines, Puget Sound Navy Yard and ammunition depot.....	425		5		1.2		0		0
Filipino unit.....	111		2		1.8		0		0
Aviation unit.....	83		32		38.5		0		0

It should be said that no unit was divided into two parts for purpose of running experimental subjects and controls side by side. Circumstances did not permit. In the largest unit (seamen's

racks) many cases of influenza had already occurred before vaccination could be performed; how many is unknown. The same is true of the draft from Philadelphia, but not of the rest of the command.

Conditions of exposure were not materially different in the different units. Housing conditions differed in that some men were in barracks and some in tents, but this seemed to have no effect upon the incidence of the disease. All of the marines were in barracks, rather closely quartered. All of the Seattle Training Camp men were quartered in tents, two men to a tent (8 by 10).

Of 4,212 men who were vaccinated not one man died. Among 111 Filipinos isolated and vaccinated early, and later exposed, there occurred only 2 cases. Among 361 marines vaccinated early, with no attempt to control exposure, there occurred 2 cases, both patients coming down after the first injection. Among 62 marines at the ammunition depot who were vaccinated early there occurred 3 cases—2 after the first injection and 1 after the third. Among 662 sailors at the Seattle training camp, 3 men developed the disease after the first injection, 1 after the second injection, and 7 after the third. Among 83 of the aviation corps there occurred 32 cases, 31 of the patients coming down within a few hours after the first injection and 1 after the third injection. Thus, altogether there were 1,279 men who were vaccinated either before exposure or about the time they were exposed, and of these, 94 developed the disease before vaccination was completed, and 11 afterwards. All recovered. Some of the cases in vaccinated men were fairly severe, and from the blood of one of these patients the diplo-streptococcus mentioned was recovered.

The period of observation was from September 17 to October 21, 1918. Up to November 3 there had occurred but 40 additional cases at the Seattle training camp and 16 at the Puget Sound navy yard, facts which seem to indicate that the epidemic was practically over at the time these data were obtained.

Mixed vaccines were tried at several different stations, but satisfactory controls were not used and war conditions made it impossible to keep track of many of the men vaccinated. The same is true of men inoculated with vaccine composed of the three fixed types of pneumococci. The use of a mixed vaccine at the United States Naval Training Station, San Francisco, Cal., while the station was under absolute quarantine has already been mentioned.

*Face masks.*—The wearing of face masks by healthy persons was made compulsory at several stations and on board a few vessels. On the whole this was not a practicable measure and little or no good was accomplished by the use of masks. The eyes were not protected. The masks quickly became soiled and required frequent adjustment by the fingers.

Reference has already been made to the three naval air stations in the third naval district, where masks were worn. The attack rates and epidemic death rates were comparatively high at two of them and at the third an epidemic had occurred in the spring.

On board one of the transports all troops and the entire crew were required to wear masks throughout the trip to Europe. The incidence of influenza was very low during the trip and this was attributed by the medical officer very largely to the wearing of masks.

However, other transports in the convoy, sailing from the same at the same time also had very little influenza on that trip without resorting to masks, although the incidence had been high during previous trip.

No evidence was presented which would justify compelling sons at large to wear masks during an epidemic. The mask is designed only to afford protection against a direct spray from the mouth of a carrier of pathogenic microorganisms; and assuming that it affords such protection, the probability that the microorganisms will eventually be carried into the mouth or nose by the fingers is very great if the mask is worn for more than a brief period of time. Masks of improper design, made of wide-mesh gauze, which are used against the mouth and nose, become wet with saliva, soiled with fingers, and are changed infrequently, may lead to infection rather than prevent it, especially when worn by persons who have not a rudimentary knowledge of the modes of transmission of the communicable agents of communicable diseases.

On theoretical grounds it is good practice to require those who visit, examine, or wait upon the sick to wear masks. The experience at the United States Naval Hospital, New London, Conn., was typical of that encountered at several other hospitals. "Face masks were worn constantly by medical officers, nurses, and hospital corpsmen while they were in the wards." "The morbidity rate, nevertheless, was very high among those attending the sick, and our experience indicates that if the mask has any value it is simply in preventing an overwhelming dose of infection from direct coughing or other means accompanied by forcible expulsion of nose and throat secretions." "While it may be taken for granted that masks should be worn by medical officers, nurses, and hospital corpsmen in handling the sick, our observations lead to the opinion that the use of masks in barracks is not a practicable measure of value under ordinary routine conditions." "The very high infectivity of this disease was demonstrated by results in our contagious annex, which is a building especially constructed for the care of communicable diseases." "During the four months patients ill with such diseases as cerebro-spinal meningitis, diphtheria, measles, mumps, scarlet fever, and German measles have been treated in this building." "Upon occasion, all of these diseases have been handled at the same time, and the patients have been subsisted from the same diet kitchen, and yet there has been no instance of cross infection." "It may therefore be concluded that the technique was satisfactory; nevertheless, it failed to prevent infection in the case of influenza." "A number of medical officers and nurses were infected in that building, and the incidence of the disease was just as high there as in the improvised wards."

At the United States Naval Training Station, Great Lakes, 1,674 hospital corpsmen and volunteers of other ratings who were on duty caring for the sick during the epidemic, 96 wore gauze masks. The others did not. Of the latter, 7.9 per cent developed influenza, while 8.3 per cent of those who wore masks contracted the disease. It will be noted that the attack rate in both groups was much the same as for the personnel in general at the station.

*Prophylactic nose and throat sprays.*—Nose and throat sprays of various kinds were used at several stations and on board



vessels, not only as a measure applied to the entire personnel in an attempt to prevent the introduction of influenza, but also to check its spread. Those who made use of sprays in a comprehensive way usually felt that good results were accomplished, but comparative statistics do not show this. So many epidemiological factors were operative in all cases and so many preventive measures were tried in addition to spraying that no definite conclusion can be reached from a review of the evidence as to whether or not any great value can be attached to the use of sprays.

At the navy yard, Philadelphia, Pa., an oil-camphor-menthol spray apparatus was installed in the machinery division and a man was kept on duty constantly to spray the nose and mouth of each employee every two hours. The results were reported as satisfactory beyond expectation. "Only two out of a thousand men contracted the disease." Two grains each of camphor and menthol to 1 ounce of liquid petrolatum was used. The liquid petrolatum was regarded as poor culture material, and furthermore it did not wash out the natural protective secretions.

Dobell's solution or alkaline antiseptic solutions were commonly used. Silvol and argyrol solutions were favorites, and chlorinated sprays were used in many places. Solutions of quinine and of zinc sulphate are also mentioned in reports.

Sprays of various kinds were used in the ninth, tenth, and eleventh naval districts and the medical aid to the commandant was of opinion that the procedure distinctly limited the number of cases. The medicament used seemed to be of less importance than the care with which the spraying was done. Reports from numerous stations indicate that cases began to decline in number and severity after spraying was resorted to. Of course, cases usually declined rapidly in numbers and severity as soon as the peak of the epidemic was reached, even though no special preventive measures were undertaken.

If sprays are used it would seem that they should be mildly stimulating but incapable of inflaming the mucous membranes. A spray which causes the mucous membranes to secrete freely may be useful in aiding mechanical elimination of microorganisms which have gained access to the nose or pharynx, but it should be borne in mind that the use of spray apparatus on a number of men in turn is not without danger of becoming a means of disseminating infection.

Another method of applying a medicament to the mucous membranes for prophylactic purposes, and one quite generally overlooked, apparently, was the administration of urotropin to healthy persons during the epidemic. It was observed by a medical officer of the Navy stationed at Los Angeles, Cal., that among 611 persons living in the city, varying in age from 15 to 60 years, who took 5 grains of urotropin three times a day, influenza was contracted in only one instance, the exception being a man of 50 who was irregular in taking his prophylactic doses. The other 610 persons were said to have been exposed to influenza fully as much as their neighbors, many of whom contracted the disease.

*Relief of overcrowding.*—Overcrowding was undoubtedly an important factor in contributing to the spread of influenza and particularly to the development of complications. However, epidemic

influenza was so highly communicable and so many factors besides overcrowding, *per se*, entered into the causation and propagation of every outbreak that it was impossible in many instances to determine just what the effect was upon incidence rates or upon fatality and epidemic death rates.

The Navy was at its greatest numerical strength during the epidemic period and overcrowding at shore stations was very general. The dangers of overcrowding were recognized everywhere but in many stations gross overcrowding could only be relieved by granting liberty freely and allowing men to sleep outside the station. The number of barracks and the number of men occupying one compartment; the ventilation; the size of the station (density of population); the nature of activities carried on; the arrival of men from other stations bringing new foci of infection or fresh susceptible material, and the character of the epidemic in the environment all had a bearing on epidemic conditions in the station. For these reasons the rates for the principal naval stations in the United States do not reveal clearly the effects of overcrowding although some were more overcrowded than others. The tendency was for large stations to suffer more from small ones. In some instances where there was great overcrowding the rates were not particularly high and in other instances where there could not be said that an unusual degree of overcrowding existed the incidence of the disease was high. Attack rates among the ships afloat were comparatively low although practically all ships were overcrowded.

Taking everything into consideration, careful study of the conditions existing in the Navy during the epidemics leads to the conclusion that overcrowding was one of the most serious conditions which medical officers had to contend in combating influenza. The most important factor in leading to the development and spread of influenzal pneumonia.

In the fourth naval district it was noted that influenza spread more rapidly in barracks than in tent camps. At Cape May, N. J., 8 cases of influenza occurred and while the attack rate was only 8 percent the case-fatality and epidemic death rates were high, 9.1 and 8.1 per thousand respectively. During this epidemic period (September, 1918) no case occurred at the section base, Cape May, where all men lived in tents. Very few cases occurred at the coast stations where about half of the complement was quartered in tents. The more or less isolated positions of these stations and the absence of congestion of population in the environment are to be considered.

At Newport, R. I., in order to make room for the care of the 1,000 men were transferred from the receiving barracks at Cloyne Field and quartered in large pyramidal tents on the Vandewater farm, September 15. "Cases of influenza continued to develop in large numbers for three days only, the epidemic among this personnel practically terminating on September 19, despite cold, dry weather." "Removal to the tent camp in the country appeared to check the epidemic." However, the epidemic at the training station near Cloyne Field, where many of the men were quartered in barracks similar in type to the receiving barracks, was also practically over on September 19. At the training station a portion of the

plement was quartered in small tents and the men in these suffered equally with those in barracks.

At Block Island, R. I., the personnel at the section base was moved into tents because it was noted that cases of influenza developed only in men subsisted in the civilian community. No case occurred subsequently. At the section base, Woods Hole, Mass., also located in an isolated position, only a few cases of influenza developed among the complement of 188 officers and men during the period of severe epidemics in September and October, but a local outbreak occurred during the week ending November 30, resulting in 22 cases of influenza and 1 death from pneumonia.

In the receiving ship at Boston (Commonwealth Pier), which was grossly overcrowded when the epidemic began, arrangements were made at once to establish a tent camp. From September 20 to November 1 the average complement of the receiving ship was more than 4,000. Of that number, approximately three-fifths were under canvas at Framingham, Mass. During this period, although the primary epidemic had passed, there were 157 cases of influenza, of which 140 occurred in Commonwealth Pier and only 17 in the tent camp at Framingham, in spite of the fact that more men were quartered in the camp.

*Ventilation.*—The mass of data covering influenza in the Navy during 1918 contains much evidence that the degree of ventilation had an important bearing on the spread of the primary disease as well as on the dissemination of microorganisms which as secondary invaders appeared to be largely responsible for fatalities. In fact, the enforcement of good ventilation stands out as one of the few preventive measures among those generally applicable which may be expected to have a definite influence in checking the spread of influenza and to make for a low epidemic death rate.

On board ship and at naval stations the operation of many other factors made it quite impossible to study the effect of ventilation by itself and the conclusion reached is rather a conviction formed by reading detailed reports of many epidemics, taking into account all attending circumstances, than one based on incidence and mortality figures. The statistics for an entire station are unsatisfactory in practically all instances for a study of the effect of good or bad ventilation.

The fact that the air was constantly in motion and rapidly removed from a room or compartment often seemed to bear a direct relation to a lower incidence rate and a lower percentage of fatal or complicated cases than in barracks or ships where ventilation was less adequate. Without minimizing the importance of the "droplet spray" as a means of transmission it is reasonable to assume that for a short time nose and throat discharges in finely divided particles may float in the air where they may convey microorganisms to other persons not necessarily in close contact. With good ventilation such material is constantly being removed.

Reports from ships indicated in several instances that the incidence of influenza was lower in well-ventilated compartments than in other compartments. It was noted during an epidemic on board the U. S. S. *Orizaba*, en route to Europe, that many cases occurred among troops who were quartered in a troop compartment on the

port side where very weak currents of air were issuing from ventilator outlets while practically no cases occurred on the starboard side where the air supply was abundant.

The United States Naval Aviation Detachment, Bolsena, Italy, was housed in barracks under exceptionally good conditions with regard to ventilation. Each man had 1,080 cubic feet of air space and fresh air ventilation was maintained constantly. At a neighboring Italian station there was considerable overcrowding, each man having approximately 270 cubic feet of air space. It was the custom here to keep the windows closed and it appeared that extra precautions were taken during the influenza epidemic to guard against too much fresh air by the use of canvas curtains around bunks and by caulking all cracks with cloth. In the city of Bolsena the same fear of fresh air was noted. "Frequently 8 to 12 persons were found sleeping in dark, low rooms of perhaps 10 by 18 feet, with the one window closed and padded to secure extra protection against fresh air."

The essential epidemiological data were as follows:

	U. S. Naval Aviation Detachment.	Italian station.	City Bolsena.
Length of epidemic.....	6 days.	40 days.	57 days.
United States detachment, Oct. 8-13.			
Italian station, Oct. 1-Nov. 10.			
City of Bolsena, Sept. 28-Nov. 23.			
Complement.....	58	579	3,000
Cases of influenza.....	13	185	1,000
Percentage of complement attacked.....	22.41	31.9	33.3
Complications.....	None.	32	100
Broncho-pneumonia.....	None.	32	100
Deaths.....	None.	9	100
Case-fatality rate, per cent.....		4.86	10.0
Epidemic death rate.....		1.50	3.33

In Guantanamo City, Cuba, during the epidemic, as observed by medical officers of the Navy, the incidence of influenza was very high and the disease was very fatal, especially in the cases of Haitians and Cubans, among whom sanitary conditions were bad and the practice of tightly closing all doors and windows was followed. Caimanera and Boqueron, on the other hand, where sanitation was supervised and good ventilation insisted upon the mortality was extremely low.

Influenza was introduced into Guam October 26, 1918, from Manila, P. I., and spread rapidly. Only a few individuals escaped attack, so that the case-fatality rate was practically the epidemic death rate. Approximately 4.5 per cent of the native population died.

*Case-fatality rates by age groups.*

	Per cent.
Under 5 years.....	22.4
5 to 10 years.....	4.8
10 to 20 years.....	3.3
20 to 30 years.....	4.8
30 to 40 years.....	6.9
40 to 50 years.....	9.0
50 to 60 years.....	14.3
60 to 70 years.....	16.7
Over 70 years.....	16.7

"Apparently the causative agent was spread by the air, which may probably be explained by the high degree of relative humidity prevailing in this climate." "Large numbers of persons were attacked simultaneously by the disease, although so far as known they had not been in close contact with the sick." "Native houses are built entirely too close together, and entirely too many people live in the same house." "The people crowd into these houses and sleep on mats spread on the floor with windows and doors tightly closed." The majority of cases among Americans were very mild and only one resulted fatally, a case of broncho-pneumonia in a carpenter's mate, second class. All medical officers and all but three nurses contracted influenza.

In the Philippines the disease early assumed grave proportions among the native population, spread rapidly, and caused many deaths. It even spread to the leper colony at Culion, where the death rate was very high. The same fulminating types seen in other parts of the world were noted and in the early part of the epidemic the diagnosis of pneumonic plague was seriously considered in one case. Taken altogether the enlisted personnel of the Navy and Marine Corps, including native forces, really suffered from influenza very slightly. The incidence among nurses and hospital corpsmen was low.

Among natives in Olongapo the attack rate was between 30 and 35 per cent; the epidemic death rate, approximately 8 per thousand, and the case-fatality rate, about 2.5 per cent. "The mortality among the very young and the very old and those affected with tuberculosis, of which there were many, was very high." Overcrowding in stuffy shacks is the prevailing custom among the natives. Doors and windows are closed tightly at night, but as a rule there are upward drafts through the bamboo floors. During the greater part of the epidemic period the weather was windy and inclement.

In brief, Navy reports from Guam, the Philippines, China, Japan, Cuba, Haiti, Santo Domingo, and Nicaragua indicate that influenza among Americans and Europeans was a milder disease than among natives, and that relatively fewer were attacked.

While one may readily believe that insistence upon good ventilation with as many changes of air per hour as can be secured without causing real discomfort is an important preventive measure, the instances cited show how unsatisfactory attempts are to prove this directly from data accumulated during the epidemics. In almost every instance, bad ventilation was intimately associated with overcrowding and other insanitary practices. Density of population and individual susceptibility are to be considered also.

*Use of screens in barracks between bunks or hammocks.*—This measure was very generally adopted. Like other measures based on the assumption that modes of transmission in the case of influenza are those of communicable diseases of the respiratory type the use of screens would appear to be an important preventive measure, especially with a view to limiting the dissemination of pneumococci, streptococci, and other known microorganisms. The means of transference other than under sleeping conditions were infinite and epidemic influenza proved to be so highly communicable that it is not to be expected that direct evidence of the efficacy of screens would be forthcoming.



*Disinfection of articles liable to contamination with nose throat discharges.*—It is the ordinary practice in the Navy to sterilize all mess gear and the dangers of the "common drinking c" are universally recognized. Extra precautions were taken everywhere throughout the epidemic period to prevent possible infection from such sources. In all probability chances for infection in this way occurred in isolated instances but there is no direct evidence to show that such articles were the means of disseminating influenza in the Navy. It is obviously impossible to judge the part played by towels, handkerchiefs, pipes, Bull Durham bags, and numerous other articles subject to transfer from one person to another.

*Restriction of gatherings indoors.*—At most stations steps were taken to keep the men out of doors. In many instances Y. M. C. buildings were closed and indoor recreation was suspended. The effect of such measures is still problematical. It is to be borne in mind, however, that by closing centers of entertainment and recreation it is frequently possible to do more harm than good in congested stations. In a large naval station where overcrowding exists and especially where the environment is a large and congested one it is perhaps better to keep such centers open, paying due attention to ventilation. At a small station in a more isolated position it may be advisable to prevent gatherings indoors.

*Daily inspection of the entire personnel.*—This measure is already indicated in the Navy when an outbreak of any communicable disease of the respiratory type threatens. The procedure was always practicable during epidemics of influenza, particularly at the larger stations. At the United States Naval Training Station, Hampton Roads, Va., "morning temperatures" were taken of as many of the personnel as possible. Those having a rise of temperature, though they felt perfectly well, were placed on the sick list and later, for experience had shown that the majority usually develop symptoms of influenza later in the day.

In the receiving ship at Norfolk (St. Helena Station) a daily morning and afternoon inspection of the entire personnel was instituted. Men showing various degrees of temperature elevation were segregated for observation. About 60 per cent of these developed typical symptoms of influenza, but upon questioning they were learned that practically all had suffered with "colds" or headache prior to having been picked from ranks, although they were not considered themselves sick enough to go to the sick bay. Among those showing a rise in temperature not followed by the development of influenza the elevation was attributed to various causes: No. 1, 14 per cent; acute rhinitis, 11 per cent; autointoxication, 6 per cent; constipation, 5 per cent; acute otitis media, 1 per cent; acute tonsillitis, 1 per cent; acute pulmonary tuberculosis, 1 per cent; diagnosis undetermined, 1 per cent.

*Early isolation of the sick.*—This was universally recognized as an important preventive measure, as it is in the case of any communicable disease, for the protection of those who might otherwise be exposed. It is particularly important to put the influenza patient to bed as soon as possible for his own welfare.

In some instances the question arose as to whether it was the policy to isolate patients in dispensaries and barrack buildings

for the purpose or to transfer all patients to hospital. In instances there was no choice in the matter. All accommodations for the care of the sick were required so that the more serious were transferred to hospital, those moderately ill were kept in messineries, and mild cases were treated in barracks.

In the matter what the circumstances under which patients were treated, experience would indicate that the use of screens between patients with a view to preventing cross infections, was a most important measure. The greater the number of patients the more dangerous the cross infection. Uncomplicated cases of influenza should not be treated in the same ward with cases of influenzal pneumonia, and the patients should be adequately screened *ipso jure* with the hope of preventing cross infection among themselves. It was not always possible wholly to separate uncomplicated cases from cases of influenzal pneumonia. It was always possible to institute an aseptic technique in the modified cubicle system, improvised by means of screens.

On theoretical grounds it would seem to be the better policy, where reasonably good care can be given, not to send influenza patients to a general hospital during an epidemic if it can be avoided, the risks of complications being less when patients are treated alone or in small isolated groups. It would also appear that if patients must be transferred to hospital they should be transferred early in the disease.

After pulmonary complications have set in, removal is often dangerous and, as in the case of measles, exposure of the influenzal pneumonia patient to the cold or fatigue incident to a long ambulance ride is liable to be exceedingly dangerous. In civil communities it is very questionable if influenza patients, even those in poor circumstances, should be transferred to hospital if good ventilation can be secured in the home, if proper nourishment can be had, if there is an intelligent person to wait upon the patient, and particularly if the services of a district or visiting nurse are available. Primary medical skill often seemed to avail more under such circumstances than the services of highly trained internists under the best hospital conditions obtainable during the epidemic. In the military service conditions sometimes make it expedient to transfer a patient to the base hospital when a case similar in character would be removed in a civil community.

It was the consensus of opinion among many observers that the patient is fortunate who can go to bed at once and remain there until the fever and until his strength begins to return.

It was observed in the receiving ship at Norfolk (St. Helena Station) that the period of early convalescence appeared to be a time of great danger to the patient, for he was then extremely susceptible to pneumonia. Feeling more comfortable, though weak, he was apt to become restless and expose himself rashly, possibly getting out of bed and walking to the toilet with bare feet. Under such circumstances definite symptoms of pneumonia not infrequently developed in a few hours. Several patients developed broncho-pneumonia within two days of normal temperature where there had been no exposure and where the nursing was careful and competent. However, it was the conviction of medical officers at this station that "early to avoid chilling, and fresh air treatment" will many times prevent complications.

At the marine barracks, Quantico, Va., it was the practice to discharge all influenza patients into a convalescent camp, separating patients who were coughing from the others. Approximately 10 per cent of convalescent patients subsequently had fever after four days of normal temperature. In the isolation hospital at that station influenza patients who developed pneumonia were at once removed to a separate ward.

At the United States Naval Air Station, Pauillac, France, there were few complications during the epidemic, and it was reported that there were fewer deaths than among other organizations on the coast. No special preventive measures could be instituted among the personnel at large because of imperative industrial demands of war. The low mortality was attributed to putting every patient to bed as soon as he complained of feeling badly, thorough spraying, and absolutely no moving or transferring.

Experience at the United States Naval Training Station, Great Lakes, Ill., led medical officers to believe that transfer of patients to hospital tended to increase the number of cases in which pneumonia complications developed. A similar belief was held by the medical officer of the officer material school, Pelham Bay Park, New York, who reported that mild cases of influenza were not transferred to hospital because of a belief that fewer complications would result if not transferred. He remarked that repeated exposure of patients with cough certainly predisposed to the development of pneumonia.

At the United States Naval Hospital, Philadelphia, Pa., among 300 cases admitted to hospital during the epidemic within 24 hours of the onset of influenza, the case-fatality rate was 2.8 per cent; among 197 admitted within 48 hours, 8.6 per cent; among 116 admitted between 48 and 72 hours after onset, 30.2 per cent, and among 20 cases admitted after 72 hours, 30 per cent.

At the United States Naval Hospital, Great Lakes, Ill., the case-fatality rate among 2,924 cases of influenza transferred to hospital was 30.5 per cent. Of these cases 1,807 had pneumonia, making a case fatality rate of 46.2 per cent for influenzal pneumonia. For the 2,924 cases of influenza the average duration of illness before admission to hospital was 5 days.

At all naval stations confronted with fulminating outbreaks of influenza, the cases which developed complications and those which in the judgment of medical officers promised to be serious from the beginning, were the ones principally transferred to hospital. Such selection of cases was usually necessary for the conservation of both hospital and dispensary beds.

*Fatigue.*—The determining factor in the development of influenza appears to be lack of specific immunity and certainly a high percentage of all persons seem to be susceptible at one time or another when the disease is prevalent. Nevertheless, the element of fatigue seems in many cases to have played a part in the development of complications.

Experience at the United States Naval Training Station, Newport, R. I., indicated that fatigue was responsible for a certain number of the cases of influenza and the schedule of instruction for incoming recruits was rearranged so as to be less fatiguing than under the former system. This change seemed to be beneficial.



servations made by a medical officer of the Navy at the large camp at Gievres, France, which was divided into subposts A, Engineering; B, Medical; C, Ordnance; D, Quartermaster; E, West End; and F, Hospital. The quartermaster seemed to indicate a close relationship between the occurrence of influenza, particularly the severe cases, and physical fatigue, long hours of uninterrupted labor with no relaxation from other duties, no entertainment or change of scenery, and exposure to cold, inclement weather. The quartermaster and labor organization suffered much more heavily than other organizations.

At there is evidence to the contrary in respect to fatigue and exposure, as there is in relation to all other epidemiological factors, shown by experience on board the U. S. S. *Lebanon* during the epidemic period. It was regarded as remarkable that no case occurred on board, in spite of the fact that no precautions could be taken to prevent the introduction of influenza other than to keep berthing spaces well aired, to sun bedding, and require men to shift into dry clothing after the day's work was done. The crew was exposed to all sorts of weather. Men were frequently wet from the waist down, and they worked long hours both day and night in the preparation of target rafts for gunnery practice.

*Travel.*—Influenza is spread by travel. Attempts were made in the navy to reduce travel between stations to a minimum consistent with the requirements of war. The history of the disease in the United States during the autumn of 1918 shows that it was carried speedily in all parts of the country by travel among civilians. In spite of all attempts to limit the transfer of men, influenza was spread by a draft of men from Boston to the navy yard, Philadelphia, Pa., and from there directly to the navy yard, Puget Sound, Wash., by another draft. Questionably the disease would have reached these stations in the absence of a short time via the civilian communities. Nevertheless, it would seem advisable to stop travel between naval stations and between stations and ships during the course of an influenza epidemic when an epidemic threatens, in the attempt to prevent by all possible means the introduction and spread of the disease from one ship to another on the principle that the longer the development of an epidemic can be delayed the less likely is the epidemic to reach a high rate to be high.

The conditions under which drafts are moved by rail, more especially for long distances, almost always involve such predisposing influences as overcrowding, bad ventilation, interrupted sleep, and irregular meals, and frequently poorly-heated cars in cold weather.

*Educational measures.*—The importance of educational measures was fully appreciated by medical officers who disseminated information on influenza among the personnel generally by means of talks, lectures, and posters.

The bureau issued a warning in the weekly bulletin, *Notes on Preventive Medicine for Medical Officers, United States Navy*, of August 9, 1918, that influenza had again assumed pandemic proportions and thereafter sought to inform medical officers promptly of developments and to supply them with information of an educational value by week, as fast as knowledge was acquired during the course of the epidemics, which proved to be of unprecedented severity.

The following are samples of circulars and posters published at various naval stations:

MARINE BARRACKS, QUANTICO, VA.

PROTECT YOURSELF FROM SPANISH INFLUENZA, DIPHTHERIA, SCARLET FEVER, THROAT, MUMPS, BAD COLDS, GRIPPE, TONSILLITIS, MENINGITIS, TUBERCULOSIS, MEASLES, WHOOPING COUGH, PNEUMONIA.

The above diseases are transmitted through the secretions of the mouth and nose of sick people or "carriers." "Carriers" are persons who do not show symptoms of the disease, yet harbor the germs.

1. Measures taken to avoid the germs or "bugs" causing these diseases

(a) *Avoid*

Overcrowding.

Common drinking cups.

Promiscuous spitting.

Stay away from one who is coughing or sneezing as minute infectious particles are expelled into the air by this process. When you cough or sneeze, cover your mouth with a handkerchief, or else bend your head downwards.

Do not put into your mouth, fingers, pencils, or anything else that does not belong there.

(b) *Promote*

Free ventilation; keep windows open as much as consistent with the climate. This causes dilution of the impure air and renders it less infectious.

2. Measures taken to avoid lowered resistance to disease.

(a) *Avoid*

Constipation.

Excessive fatigue, worry, or mental exhaustion.

Unnecessary exposure to cold or wet.

Change wet clothing whenever necessary, especially shoes and socks.

(b) *Promote health by*

Frequent baths followed by a brisk rub down.

Mild physical exercises.

Drink one or two glasses of water on rising.

Keep well covered with blankets at night.

Brush teeth regularly.

Wash your hands before each meal.

W. L. MANN,

Lieutenant-Commander, Medical Corps, U. S. N., Post Surgeon

Approved:

A. W. CATLIN,

Brigadier General-Commanding.

NOTICE.

UNITED STATES NAVY YARD,  
Marine Island, Cal., September 25, 1918.

INFLUENZA.

1. Influenza, Spanish influenza, or grippe, has made its appearance in the Eastern and Middle Western States in the form of a rapidly spreading epidemic. Since it will undoubtedly be carried here the following information is given in order that you may be in a better position to prevent its spread, thereby protecting the members of your household and your neighbors.

2. No other communicable disease which assumes epidemic proportions spreads so rapidly or attacks so large a proportion of the population, no age, sex, or class of society being immune.

3. The infectious agent is the influenza germ which is carried by the secretions of the nose and mouth.

4. The modes of infection are (1) directly from the infected individual by coughing, spitting, sneezing, or by in any way coming in contact with the

with secretions; (2) by indirect methods through contact with articles by the above-mentioned secretions, such as handkerchiefs, towels, mess-etc. In this connection it must be remembered that the disease germs persist in the nose and throat for some time after the symptoms of the have subsided.

The incubation period is very short, one to four days, average two.

*Methods of control.*—(1) Early recognition of the case: In order that may be early recognized a brief description of the onset and symptoms. Onset usually rapid, with a chill followed by fever from 102° to 104°, depression, weakness, dizziness, severe headache, backache, pains, and loss of muscles and joints all over the body. The throat may feel sore, the nose congested and do not bear the light well. There are practically always symptoms of a bad cold, with running eyes and nose, soreness and tightness of the throat with coughing. Anyone presenting the foregoing symptoms, or any one of them should report at once to a medical officer. (2) When the case is recognized, rigid isolation must be carried out; only one attendant per case; attendant must wear gown and gauze face mask.

Concurrent disinfection must be practiced to include all articles which come in contact with the patient, such as clothing, bedding, messgear, papers, letters and all personal belongings of attendant. Careful nursing, in a warm, well ventilated room is an essential part of the treatment. Pneumonia is a common complication.

Terminal disinfection, thorough cleansing and airing of the compartment and sterilization of all linen and bedding of patient.

Vaccination against influenza is partially successful.

General methods to prevent the spread of infection.

Avoid crowded assemblages during the epidemic such as theaters, picture shows, public gatherings of all kinds.

Avoid traveling on congested public conveyances.

Do not cough, spit, or sneeze promiscuously; always use your handkerchief over your mouth when coughing or sneezing.

JOHN L. NIELSON,

*Commander, Medical Corps, United States Navy.*

Approved:

HARRY GEORGE,

*Captain, United States Navy, Retired, Commandant.*

ATTENDANT'S ORDER }  
No. 386

UNITED STATES NAVY YARD,  
Mare Island, Cal., September 24, 1918.

Subject: Precautions to be observed in anticipation of an epidemic of influenza at Mare Island.

Commanding officers shall comply as far as practicable with the following instructions:

(a) No recruits or drafts to be sent to this station until the probability of an epidemic no longer exists.

(b) Sleeping space per man to be 50 square feet; overflow to be placed in tents.

(c) Cubical isolation to be established by hanging curtains between bunks or cots and between hammocks. Sheets and other available material may be used for this purpose.

(d) A copy of this notice to be conspicuously posted, and all enlisted men and civil employees to be made acquainted with the contents thereof. It is impossible to establish a strict quarantine at this yard without closing the yard, and no efficient separation between civilians and military personnel can be established. A modified quarantine as follows is hereby directed:

(e) Continue 21-day detention of all arrivals as at present.

(f) When cases develop in adjacent towns stop liberty; stop congested gatherings of personnel, such as theaters, moving pictures, recreation rooms, reading rooms, churches, class rooms, etc. Permit only drills, musings, and instruction in the open air.

(g) Strict isolation of cases of the disease, with concurrent and terminal disinfection. Attendants on cases to wear gowns and face masks, and to observe strictly the disinfection of the hands after handling cases. Cubical isolation of patients, as above provided, to be complied with.

3. All spoons, knives, forks and cups, and other articles of mess gear boiled in dishwashing machines for a period of five minutes. Competent persons are to be detailed to see that this provision is carried out.

4. Fatigue of personnel to be reduced by limiting drills and other military exercises. Clothing protection to be ample, and latitude to be permitted consistent with the maintenance of discipline. All washable clothing to be laundered, especially handkerchiefs and towels.

5. The swimming pool is to be given a little chlorine in excess of that at present, and is to be closed entirely if influenza appears on the station.

6. All sanitary drinking terminals with globe tips to have the porcelain globe portion of the terminal removed.

#### CARE OF SICK.

7. Additional personnel to cope with an anticipated epidemic has been requested by the commandant. Provision for temporary hospital facilities for sick, within the limits of the naval training camp and marine barracks, accomplished either by hospital tents or the assignment of certain buildings for that purpose. Severe cases, or those developing into pneumonia, to be sent to the naval hospital; mild cases may be cared for in temporary hospitals established in the camps.

8. Provisions for the care of civilian sick to be established at the camp. Such civilian cases to be limited to those individuals who have no home to which they can be nursed and fed while sick. The naval hospital has arranged for severe cases and pneumonia among civil employees, and, if necessary, mild cases may be treated in temporary hospitals at camps or in a temporary hospital near yard dispensary.

HARRY GEORGE.

*Captain, U. S. Navy (Retired), Commandant.*

U. S. S. "MISSISSIPPI," September 15, 1918.

Subject: (a) Sanitary Bulletin No. 6.

(b) Influenza.

1. Influenza or "grippe" is more contagious than measles. Though common enough at all times, there have been several epidemics. In 1918 there was a world-wide epidemic in which three-fourths of our city population were affected. It is caused by a germ—the bacillus of influenza. The infection is introduced through the nose and throat. It spreads most rapidly where people are crowded, as on a ship, because the air becomes filled with germs from the coughing and sneezing of those who have the disease. It is not a "common cold," but is of greater severity.

2. *Symptoms.*—It may begin within a few hours after infection, or may not appear for several days. It begins suddenly with fever, headache, pain in the back and shoulders, and feeling of weakness. Coughing and sneezing appear early in the attack. The cough is at first dry and hacking, and may be accompanied by the sensation of suffocation. There are many complications which may occur. Pneumonia appears to be common in this epidemic. After recovery, a feeling of depression is liable to last a long time.

3. *Prevention.*—It is a dangerous disease and will, if we should have many cases, make it difficult to "play the game." We have not a single case at present. Help us to keep clear of it.

When coughing or sneezing place a handkerchief in front of your face. Swing your hammock head to foot.

Keep out of crowds.

Don't use anyone else's towel, handkerchief, or cup.

Get lots of fresh air.

Report at sick call if you have a "cold."

If you rate a "48," paste this in your hat:

Avoid the hug,

Avoid the lip,

Escape the bug

That gives the "grippe."

Approved for publication.

(Signed)

B. F. HUTCHISON.

*Captain, United States Navy, Commandant.*

U. S. S. "MISSISSIPPI," October 8, 1918.

Subject: (a) Sanitary Bulletin No. 7.

(b) Present status of influenza.

Influenza is with us, but it is mild. We have had very few cases, and the severity of these have not been severe. We have fared better than the other ships in the fleet. A number of deaths have been reported from other ships. We have not had a single death. Only three of our patients have been sick enough to necessitate transferring them to the hospital ship, and these are now on the road to recovery. We now have 15 cases, and 8 have been returned to duty. These fine results are not a matter of luck; they are due to the splendid cooperation of the officers and men of the *Mississippi*. Keep up the good work. When coughing or sneezing place a handkerchief in front of your face. Turn your hammock head to foot.

Keep out of crowds.

Don't use anyone else's towel, handkerchief, or cup.

Get lots of fresh air.

Report at sick call if you have a "cold."

A clean ship is a healthy ship. Clean 'em up, *Mississippi*.

Approved:

(Signed) B. F. HUTCHISON,  
Captain, United States Navy, Commanding.

The Bureau of Medicine and Surgery published the following circular for use in the Navy Department during the epidemic in Washington, D. C., and copies were distributed also at various naval stations:

[Circular No. 1.]

DIVISION OF SANITATION,  
Washington, D. C., September 26, 1918.

## INFLUENZA.

Influenza is "grippe." It is now spreading over the country in epidemic form. The most extensive epidemic occurred in 1889-90, and the disease was very prevalent for several years after.

The present epidemic disease is plain influenza. The term "Spanish influenza" has been applied because of its recent prevalence in Spain. Influenza occurs every year in the United States, but it is more contagious during an epidemic, and pneumonia is a more frequent complication.

Influenza is caused by a germ, the *influenza bacillus*, which lives but a short time outside of the body. Fresh air and sunshine kill the germ in a few days.

The disease is spread by the moist secretions from the noses and throats of infected persons.

Protect yourself from infection, keep well, and do not get hysterical over the epidemic.

Avoid being sprayed by the nose and throat secretions of others.

Beware of those who are coughing and sneezing.

Avoid crowded street cars—walk to the office if possible.

Keep out of crowds—avoid theaters, moving-picture shows, and other places of public assembly.

Do not travel by railroad unless absolutely necessary.

Do not drink from glasses or cups which have been used by others unless you are sure they have been thoroughly cleansed.

You can do much to lessen the danger to yourself by keeping in good physical condition.

Avoid close, stuffy, and poorly ventilated rooms—insist upon fresh air, but avoid disagreeable drafts.

Eat simple, nourishing food and drink plenty of water. Avoid constipation. Secure at least seven hours sleep. Avoid physical fatigue.

Do not sleep or sit around in damp clothing.

Keep the feet dry.

Influenza usually has a sudden onset with chilliness, severe headache, and "drag all over." At times the disease begins with nausea, vomiting, and abdominal pain. Fever begins early. Frequently catarrhal symptoms do not appear until later. When they do they are the symptoms of a bad cold in the



head with a raw throat and dry cough. Weakness and prostration out of proportion to the fever are common. Former epidemics have been characterized by marked mental depression. In the present epidemic many of the cases have a gradual onset—more like a gradually increasing cold in the head.

Practically, the great danger from influenza is pneumonia, which tends to follow in a considerable percentage of the cases.

For the protection of others, if you are really sick stay at home and remain there until the fever is over. A day in bed at the very beginning may also save you from serious consequences later on.

If you are up and about, protect healthy persons from infection—don't spit on others with the secretions from your nose and throat in coughing, sneezing, laughing, or talking. Cover the mouth with a handkerchief. Boil your handkerchiefs and other contaminated articles. Wash your hands frequently. Keep away from others as much as possible while you have a cough.

If you become ill don't try to keep on with your work. Fight the disease rationally and do not become unduly alarmed. In the average case recovery from acute symptoms follows in five or six days. To hasten recovery and less the danger of complications, go to bed at once and keep the body warm. There should be plenty of fresh air, but chilling is to be avoided. At the beginning of the disease a cathartic, such as  $2\frac{1}{2}$  or 3 grains of calomel, followed by Epsom salt powder or epsom salts, is useful. Aspirin in 5-grain doses is useful for pain, but do not take large doses of aspirin, phenacetin, or other medication. Send for the doctor.

*Therapeutic use of the serum of convalescent influenzal-pneumonia patients.*—At the United States Naval Hospital, Chelsea, Mass., treatment of influenzal pneumonia with serum obtained from patients convalescing from influenzal pneumonia was begun early in October. In all, 151 patients were treated, of whom 6 died, making a case-fatality rate of 4 per cent. Most of these cases were treated early in the course of the pneumonic complication. The average dose of serum was 120 cc. Lieutenant Commander L. W. McGuire and Lieutenant W. R. Redden, Medical Corps, United States Navy, who conducted this work concluded that "pooled serum from convalescent influenzal broncho-pneumonia patients at this hospital has greatly reduced mortality, has shortened the course of the disease, and has proved almost a specific, not only during a waning epidemic but also during the more recent severe recrudescence." The recrudescence referred to included cases from the U. S. S. *Yacona* previously mentioned in connection with experimental attempts at the Boston station to transmit influenza to volunteers. The best results were obtained in cases showing leucopenia. The outcome of streptococcal pneumonia cases was not influenced much by the serum treatment and therefore serum was not administered in cases diagnosed as streptococcus pneumonia by lung puncture. Apart from this, cases treated with serum showed striking and immediate improvement clinically in most instances.

At the United States Naval Hospital, Washington, D. C., Lieutenant F. W. Hartman, Medical Corps, United States Navy, reported that of 567 cases of influenza, 157, or 27 per cent, developed pneumonia. One hundred and eleven were not treated with serum. Of these, 28 died, making a case-fatality rate of 25.2 per cent. Forty-four cases were treated with serum from patients convalescing from influenzal pneumonia, with the result that there were only 3 deaths or a case fatality rate of 6.5 per cent. Pneumococcus empyema was found in two of the fatal cases, and streptococci were recovered by lung puncture in the third.

At the United States Naval Hospital, Parris Island, S. C., 48 cases of influenzal pneumonia were treated with serum from patients con-

scing from influenzal pneumonia with 35 recoveries and 13 deaths, making a case fatality rate of 27 per cent. During the early part of the epidemic it was impossible to follow the blood counts closely but with two or three exceptions the usual leucopenia was observed. Leucopenia gradually disappeared with improvement in the patient's condition. The serum did not cause a sudden increase in the leucocyte count. Serum from convalescent influenza patients was apparently of little value. There was considerable variation in the potency of serum donated by different patients convalescing from pneumonia. One donor yielded 500 c.c. of serum and invariably the patients of his serum showed marked improvement even after that other donors had failed to relieve symptoms. Lieutenant Commander J. A. Bass and Lieutenant C. E. Ervin, Medical Corps, United States Navy, who reported these cases concluded, "In spite of the high mortality rate, as noted above, we are satisfied beyond the shadow of a doubt that the use of serum from convalescent influenzal pneumonia patients is of marked value in the treatment of influenzal pneumonia." "The sooner the treatment is begun the better the prognosis." "Treatment was not withheld in any instance because the patient seemed hopelessly ill when first seen."

At the United States Naval Hospital, Great Lakes, Ill., it was concluded that the use of serum from convalescent patients was of practically no account. During the early part of the epidemic patients received were desperately sick and conclusions were held up in regard to this treatment. Later, when fresher cases were received the good results that others reported were not obtained. On board the U. S. S. *Solace* (hospital ship) the supply of human serum was limited and was only administered to those patients who were critically ill. Of nine cases treated, two died. One of these was admitted in a moribund condition. In the other fatal case the findings were double pneumonia, pneumococcus septicemia and pneumococcus (Type III) meningitis. From one to eight doses of serum were administered in the remaining seven cases. In three instances improvement was rapid; in the others more gradual, but the medical officers in charge of the cases had no doubt that the serum produced beneficial results.

#### PNEUMONIA.

As a cause of death the pneumonias, both lobar pneumonia and lobar pneumonia complicating other diseases, are far in the lead of all other causes. Of the 5,938 deaths due to disease during the calendar year 1918, 5,027 were due to pneumonia, as follows:

Lobar pneumonia	601
Lobar pneumonia complicating other diseases	156
Influenzal pneumonia	4,158
Interstitial pneumonia	112
Total	5,027

If pneumonia in its various forms could have been eliminated as a cause of death, the death rate of the Navy for disease only would be per 1,000 instead of 11.78.

Deaths from pneumonia complicating measles are charged to measles as the primary cause of death. Deaths from pneumonia

complicating influenza are charged to influenza as the primary cause of death.

Epidemic influenza with its fatal pulmonary complications so overshadowed all other causes of death that it has been taken up in detail under a separate heading. Chart No. 5 shows the effect of influenza on the admission rate for pneumonia during September, October, and November.

With regard to primary lobar pneumonia, this disease has its greatest prevalence during the months of January, February, March, April, when exposure to raw, cold, wet, and windy weather is common. (See chart No. 5.) This together with fatigue and other predisposing influences are of great importance in determining development of the disease. During the autumn of 1918 lobar pneumonia was unduly prevalent.

During the first six months of the calendar year 1918, there were 422 deaths from primary lobar pneumonia, with a semiannual death rate of 102 per 100,000. During the first six months of 1919 there were only 82 deaths from primary lobar pneumonia, making a semiannual death rate of 18.3 per 100,000. In this period the bulk of pneumonias reported were of the influenzal type following in the wake of the great pandemic. It is not unlikely that many of the pneumonias which occurred during the spring of 1918 were in reality largely influenzal in origin, although not recognized as such and therefore considered to be frank lobar pneumonia. Certain it is that streptococci were active invaders, producing a mixed infection of high virulence, as instanced by the large number of deaths from measles pneumonia.

The death rate for pneumonia (lobar and primary bronchial) for the force ashore was 281 per 100,000, while the rate for the same causes for the force afloat was only 78 per 100,000. The admission rates were 55.28 per 1,000 and 8.87 per 1,000, respectively.

There were in all 757 deaths from lobar and primary bronchial pneumonia in the entire Navy during the calendar year 1918. This is thus a death rate of 150.2. (See chart No. 18.) The death rate for civil communities for the year 1917 (figures for 1918 not available) was 149.8 per 100,000.

The following table gives the results of typing in cases of lobar pneumonia:

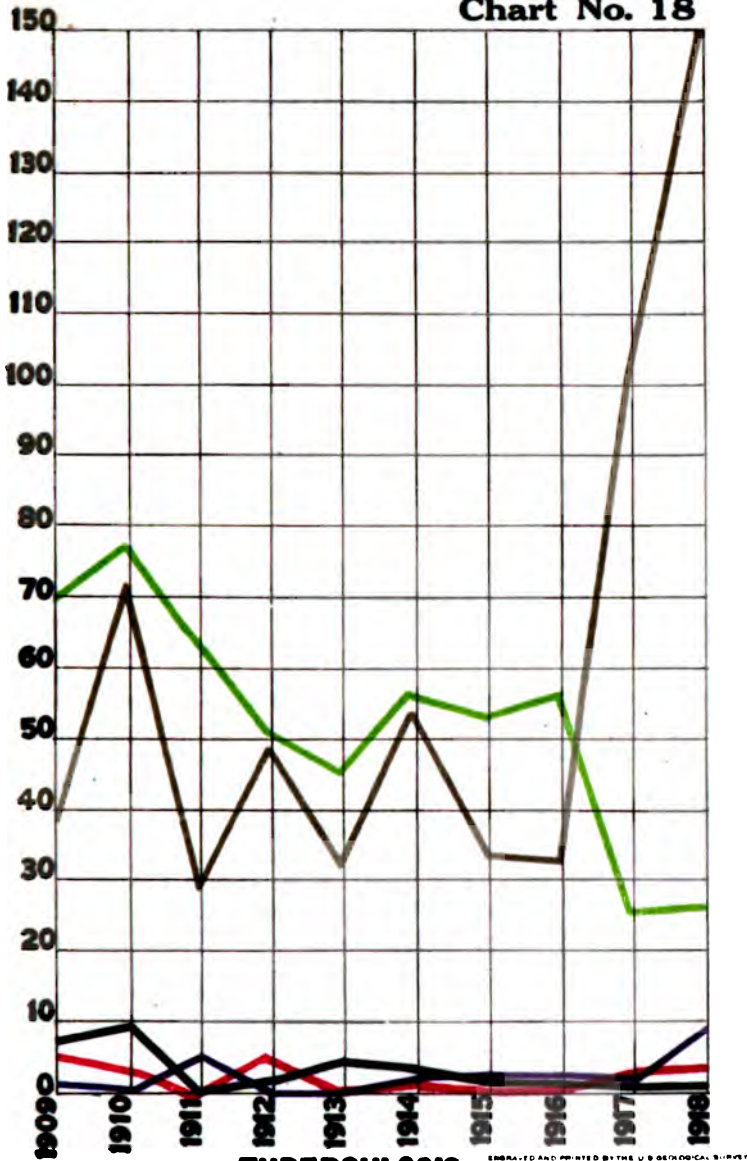
	Type I.	Type II.	Type III.	Type IV.	Type V.
League Island.....	1	2	.....	10	.....
Chelsea.....	16	8	4	33	.....
San Diego.....	12	16	6	2	.....
Hampton Roads.....	10	9	.....	17	.....
Pelham Bay Park.....	3	.....	.....	.....	.....
San Francisco.....	4	1	.....	1	.....
Total.....	46	36	10	63	.....

#### MEASLES.

During the calendar year 1918 there were admitted to the list 6,915 cases of measles with 112 deaths. The admission rate was 13.72 per 1,000, the death rate 22.2 per 100,000, and the case fatality rate 1.61 per 100. Measles was particularly prevalent among



Chart No. 18



**TUBERCULOSIS.**

**PNEUMONIA.**

**SMALLPOX.**

**SCARLET FEVER.**

**DIPHTHERIA.**

Annual death rates per 100,000 for certain communicable diseases, entire Navy, calendar years 1909 to 1918.



s during the early months of the year, when it resulted in many deaths by reason of its common complication broncho-pneumonia caused by mixed infection with a virulent strain of streptococci.

Experience continues to show that exposure of a case of measles to hospital is a dangerous procedure inviting pneumonia, and it is therefore probably best not to attempt removal to hospital, but to leave the patient in a regimental cubicle or even in barracks, improvising a cubicle by means of screens. The Army had the same experience.

During the first six months of the year 1918 there were 102 deaths from measles. This is in marked contrast to the first six months of the year 1919, when there were but 17 deaths, representing a semi-annual rate for the first 6 months periods of 24.6 and 3.8 per 100,000, respectively.

During the first six months of the year 1918 there was a continuous increase in the size of the Navy, while during the first six months of the year 1919 the Navy was being gradually demobilized. Notwithstanding, the average complement during the latter period was greater by about 32,500 men. There was, however, much less nonimmune material being enlisted and in all probability the year 1919 is not a measles year. Epidemics of measles seem to run in cycles with intervals of two years during which the disease is not epidemic.

Epidemiological study of measles as seen in the Navy would indicate that second attacks rarely occur, but that mistakes may occur in differentiating between German measles and true measles. Also at times the terms are used loosely, a patient being informed that he has measles, whereas the physician may have meant German measles. This in part accounts for the idea that measles is frequently contracted a second time. Chart No. 5 shows the admission rate per 1,000 for measles by weeks, calendar year 1918.

#### CEREBRO-SPINAL FEVER.

During the calendar year, 1918, there were admitted to the sick list 594 of cerebro-spinal fever with 205 deaths. The admission rate was 1.17 per 1,000, the death rate 40.6 per 100,000 (see chart No. 19), and the case-fatality rate 34.5 per 100. Both admission and death rates are lower than those for the year 1917, which were 1.51 per 1,000 and 45.6 per 100,000, respectively.

It has been pointed out in a previous report that cerebro-spinal fever occurs under very much the same conditions as pneumonia. Disposing factors, such as overcrowding, overexposure to cold and fatigue, and other infections, are important considerations in determining its presence and spread. Outbreaks of this disease are limited and the number of carriers is ordinarily out of all proportion to the number of cases. As was to be expected, in 1918 the greatest number of cases occurred during the months when pneumonia had its greatest prevalence, namely, during January, February, and March and again during September, October, and November, when it was associated with influenzal pneumonia. (See chart No. 5.)

During the first six months of 1918, there were 132 deaths from cerebro-spinal fever, making a semiannual death rate of 31.9 per 100,000. This is in marked contrast to the first six months of the calendar year (1919) during which there were but 32 deaths from cere-

bro-spinal fever, making a semiannual death rate of only 7.1 per 100,000 and forecasting a year in which the number of cases of the disease will be comparatively few.

For all forms of cerebro-spinal meningitis 822 cases were reported. Undoubtedly many cases of cerebro-spinal fever were reported in general terms as cerebro-spinal meningitis. There is no way of correcting such returns on morbidity report blanks. In fatal cases it is possible in practically all instances to determine from the death certificate whether or not the case was one of cerebro-spinal fever (meningococcus meningitis) or cerebro-spinal meningitis caused by other microorganisms. If it had been possible to charge all cases of cerebro-spinal fever to the correct diagnosis, the admission rate would be materially increased and therefore the true case-fatality rate would be considerably lower than the indicated rate, 34.5.

Cerebro-spinal fever has been reported during the year from the following number of ships and shore stations, including the training stations: Great Lakes; training station, San Francisco; training station, Hampton Roads; training station, Newport; training camp, San Diego; training camp, Pelham Bay Park; training camp, Charleston, S. C.; training camp, Key West; training camp, Seattle; training camp, Mare Island; training camp, Cape May; training camp, San Pedro; receiving ship at Norfolk; receiving ship at New York; receiving ship at Philadelphia; receiving ship at Boston; receiving ship at Puget Sound; naval station, Pensacola; district section headquarters, Lockwoods Basin, Boston; Newport section base; submarine base, New London; Dunwoody Industrial Institute, Minneapolis; marine barracks, Quantico; marine barracks, Parris Island, and the following ships:

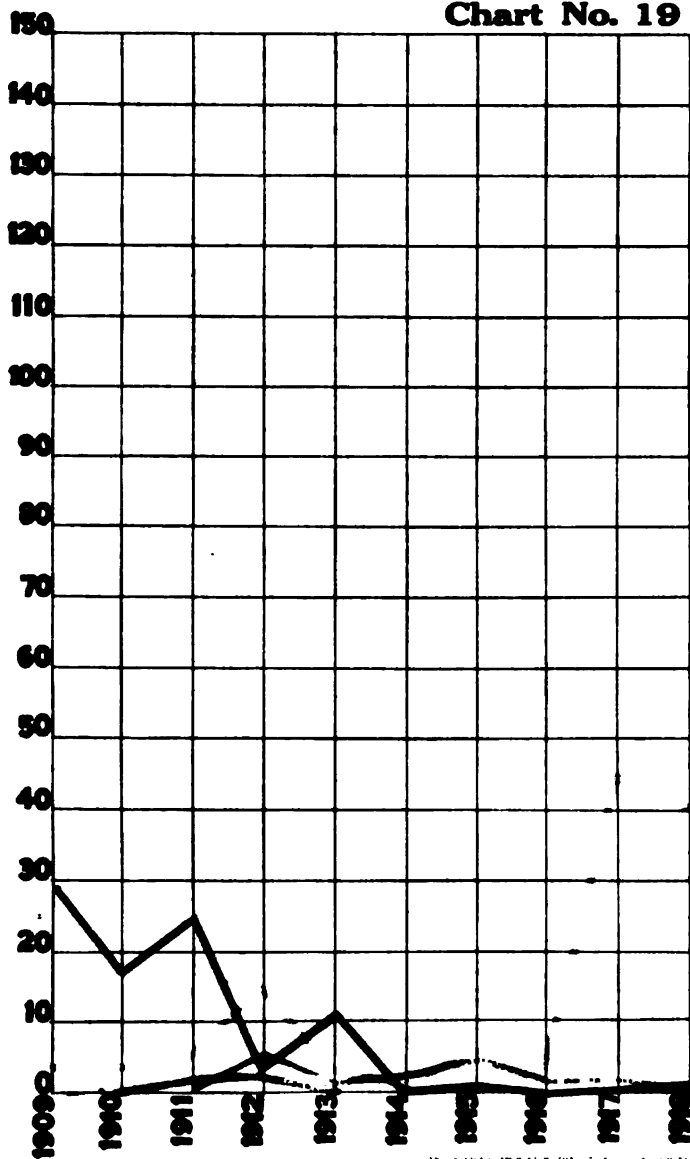
U. S. S. Alabama,	U. S. S. Kearsarge,
U. S. S. Kentucky,	U. S. S. Connecticut,
U. S. S. Pennsylvania,	U. S. S. New Jersey,
U. S. S. New Hampshire,	U. S. S. Ohio,
U. S. S. Oklahoma,	U. S. S. Utah,
U. S. S. Missouri,	U. S. S. South Carolina,
U. S. S. Vermont,	U. S. S. Florida,
U. S. S. Rhode Island,	U. S. S. Sierra,
U. S. S. Henderson,	U. S. S. Susquehanna,
U. S. S. Kroonland,	U. S. S. Matsonia,
U. S. S. Nevada,	U. S. S. Martha Washington.
U. S. S. Maine,	

The disease on board ship ordinarily makes its appearance with one or two cases and then immediately dies out. There seems to be no tendency to become either epidemic or endemic.

During the epidemic of influenza at the training station, Great Lakes, in September, 1918, there were 46 cases of complicated meningitis due to various microorganisms as follows:

	Number of cases.	Number of deaths.	Case-fatality rate, per cent.
Cerebro-spinal fever (meningococcus) .....	29	2	
Cerebro-spinal meningitis (pneumococcus) .....	5	5	
Cerebro-spinal meningitis (streptococcus) .....	2	2	
Cerebro-spinal fever (meningococcus) with lobar pneumonia .....	10	7	

**Chart No. 19**



——— TYPHOID FEVER.  
 ——— CEREBROSPINAL FEVER.  
 ——— MALARIA.  
 ——— YELLOW FEVER.

Annual death rates per 100,000 for certain communicable diseases, entire Navy, calendar years 1909 to 1918.



appropriate serum was administered intravenously in all cases, the results obtained in unmixed meningococcus infection were extremely satisfactory.

It is interesting to note that the flurry of cerebro-spinal fever during the epidemic of influenza was not accompanied by an increase of carriers over the ordinary number at that station for the season of the year, namely 1.5 per cent.

The United States Naval Training Camp, Pelham Bay Park, New York, one of the largest training camps, with a complement varying from 4,000 at the beginning of the year to 17,000 at the close of the year, did not have any cerebro-spinal fever until October, when six cases developed, associated with epidemic influenza.

The search for carriers among contacts as well as among the total personnel has been continued throughout the year at the various stations and on ships of the Navy. Carriers have been detected in numbers varying from 0.5 per cent to 18 per cent of those examined.

*Admission rates per 1,000 and death rates per 100,000 for cerebro-spinal meningitis, including cerebro-spinal fever, by years, 1909 to 1918.*

Year.	Average complement Navy and Marine Corps.	Admissions.	Admission rate per 1,000	Deaths.	Death rate per 100,000.
1909	57,172	11	0.192	2	3.49
1910	58,340	6	.102	1	1.74
1911	61,399	12	.195	3	4.88
1912	61,897	22	.355	9	14.54
1913	65,026	9	.136	6	9.10
1914	67,141	14	.208	1	1.48
1915	68,075	19	.279	4	5.87
1916	69,294	2	.028	1	1.41
1917	245,580	508	2.06	151	61.40
1918	503,792	822	1.63	247	49.00

#### DIPHTHERIA.

There were reported during the calendar year, 1918, 1,818 cases of diphtheria with 48 deaths, making an admission rate of 3.60 per 1,000, a death rate of 9.5 per 100,000 (See chart No. 18), and a case-fatality rate of 2.64 per 100. During the year the disease has occurred from time to time at different shore stations, including receiving ship at New York; Great Lakes training station; San Diego, receiving ship at Boston; training station, San Francisco, receiving ship at Norfolk, Va.; receiving ship at Philadelphia, naval station, Pensacola, Fla.; naval base station, Hampton Roads, Va.; armed draft detail, New York; Hingham, Mass.; Harvard Radio School, Cambridge, Mass.; New Orleans, La.; Pelham Bay Park, N. Y.; Bensonhurst; Bumkin Island; Dunwoody Industrial Institute; submarine base, New London, Conn.; section base, New London, Conn.; section base, Cape May, N. J.; training camp, receiving ship at Puget Sound, Wash.; training camp, Detroit, Mich.; training camp, Mare Island, Cal.; training camp, San Francisco; marine barracks, Quantico, Va.; marine barracks, Parris Island, S. C.; and in the following ships:

S. Amphitrite.	U. S. S. South Dakota.	U. S. S. Olympia.
S. Villalobos.	U. S. S. St. Louis.	U. S. S. Albany.
S. Seattle.	U. S. S. Columbia.	U. S. S. Pueblo.

U. S. S. Alabama.	U. S. S. Missouri.	U. S. S. New Hampshire.
U. S. S. Arkansas.	U. S. S. New Jersey.	U. S. S. Leviathan.
U. S. S. Connecticut.	U. S. S. Wisconsin.	U. S. S. Zeelandia.
U. S. S. Kearsarge.	U. S. S. Kentucky.	
U. S. S. Michigan.	U. S. S. Minnesota.	

While epidemics have threatened a number of times, diphtheria has seldom been present at any station to an alarming extent, principally because of the active measures which were taken at various stations to prevent its spread immediately upon the detection of a case or carrier. These measures included isolation of the case, search for carriers, application of the Schick test, and active immunization of susceptible persons with toxin-antitoxin mixture.

Ships of the Navy have been particularly free from diphtheria throughout the entire year. Sporadic cases have occurred but epidemics have been rare. The persistent presence of diphtheria on the receiving ship at New York (mentioned in the annual report for 1918) gave rise to great annoyance and was the cause of spread of the disease to several ships including the U. S. S. *Michigan* and U. S. S. *Pueblo* in both of which diphtheria became epidemic. Small outbreaks also occurred in the U. S. S. *Texas*, U. S. S. *Olympia*, U. S. S. *Seattle*, and U. S. S. *Leviathan*.

Diphtheria reached its highest prevalence in the Navy both ashore and afloat during the first six months of the year, especially in March and April. (See chart No. 5.) For instance, during the first six months of 1918 there were 40 deaths reported from diphtheria, making a semi-annual death rate of 9.4 per 100,000. This is four times the number of deaths that occurred during the last six months of the year. During the first six months of 1919, there were only 25 deaths from diphtheria, making a semi-annual death rate of 4.2 per 100,000. It would, therefore, appear that the death rate for this disease would continue low throughout the present year. The death rate for diphtheria in the registration area of the United States for 1917 (figures for 1918 not available) was 16.5 per 100,000.

The Schick test has been used extensively both on board ship and ashore. Toxin-antitoxin immunization has been made use of to an increasing extent. Particular observations on the spread of diphtheria with relation to these special preventive measures have been made at the training station, Great Lakes, Ill., and at the U. S. Naval Academy, Annapolis, Md.

Reports from the United States Naval Training Station, Great Lakes, following the application of the Schick test to 7,637 recruits, mostly young adult males, indicate that the percentage of positive reactions varies according to the time of the year as follows: December, 47 per cent; January, 45 per cent; February, 74 per cent; March, 78 per cent. It was also found that in given groups of men, the reaction in certain individuals changed from negative to positive at a later date. An attack of diphtheria does not necessarily insure a negative test after a lapse of time. The observers found that the reliable method for heating the control is to place it in the steam sterilizer for 15 or 20 minutes; that heating at 100 C. is unnecessary and that in all probability heating at 75 C. for five minutes is sufficient.

Work done at the United States Naval Academy, Annapolis, indicates results similar to the above. It was found in testing 1,147 men



men in 1918, that 55.2 per cent gave a positive Schick reaction; per cent gave a positive Schick reaction four months after the administration of toxin-antitoxin mixture, and 150 men who had previously given negative reactions responded positively to a subsequent Schick test. A case of diphtheria was reported in March, 1919, in a midshipman who had had diphtheria in the spring of 1918, and who had had a positive Schick test followed by the administration of toxin-antitoxin mixture in November, 1918.

The following tabulation shows the number of weeks' treatment required to produce three negative cultures in 245 diphtheria bacillus carriers at the United States Naval Hospital, Portsmouth, N. H., from May 2, 1918, to August 31, 1918:

Number of weeks required.	Number of carriers.
1	54
2	116
3	38
4	17
5	10
6	3
7	3
8	2
12	2
<sup>1</sup> 2.43	<sup>2</sup> 245

<sup>1</sup> Average.<sup>2</sup> Total.

all carriers were first given a Schick test and to those found susceptible an immunizing dose of antitoxin was administered. They were then treated by nasal sprays and gargles for one week. Twenty-four hours were allowed to elapse after treatment and then cultures were taken. Patients showing positive cultures were again placed under treatment; those showing negative cultures were separated, treatment given and culturing continued until three successive negative cultures, taken twenty-four hours apart were obtained. The throats of all carriers were examined by specialists and inflammations, hypertrophies, and deformities of the nose and throat were treated and corrected.

In instances of diphtheria wound infection have been reported at the United States Naval Hospital, Chelsea, Mass.; three of these resulted fatally; six of them did not have any constitutional symptoms.

#### SCARLET FEVER.

Scarlet fever has not been a serious menace to the health of the navy. In addition to scattered cases here and there, on board ships as well as ashore, there have been a few small outbreaks. During the course of the disease has occurred from time to time at the following locations:

Quarantine station, Great Lakes.  
Quarantine station, San Francisco.  
Quarantine station, Hampton Roads.  
Quarantine station, Newport.  
Quarantine camp, San Diego.  
Quarantine camp, Pelham Bay Park.  
Quarantine camp, Charleston, S. C.  
Quarantine camp, Key West.

Training camp, Seattle.  
Training camp, Mare Island.  
Training camp, Cape May.  
Training camp, Hingham.  
Receiving ship at Norfolk.  
Receiving ship at New York.  
Receiving ship at Philadelphia.  
Receiving ship at Boston.

Receiving ship at Puget Sound.  
 Newport section base.  
 Section base No. 6, Third District.  
 Section base, New London.  
 Dunwoody Industrial Institute.  
 Radio School, Harvard University.

Armed draft detail, New York.  
 Submarine base, New London.  
 Detention camp, Deer Island.  
 Marine barracks, Quantico.  
 Marine barracks, Parris Island.

Ships have suffered very little from this disease, even those carrying troops.

During the calendar year 1918 there were 1,207 cases of scarlet fever admitted to sick list and there were 14 deaths. The admission rate was, therefore, 2.39 per 1,000, the death rate 2.8 per 100,000 (see chart No. 18), and the case-fatality rate 1.15 per 100.

Outbreaks have been treated in the customary way—by isolation of the case and maintenance of isolation for four weeks, or until all signs of inflammation have disappeared, and by the early detection of sore throat among contacts, or those who have presumably been exposed. An occasional case cropping out in the receiving ship, at Norfolk, in spite of preventive measures, gave rise to great annoyance. The disease persisted in the brig in the absence of any known focus of infection. It is believed that the causative agent persisted in the throats of men returned from isolation, even after all evidence of throat lesions had disappeared. There is no exact knowledge of this subject, but it is known that a very small percentage of "return" cases may be expected, even when the original case has been isolated for three months or longer. A period of isolation of this length is unreasonable and impracticable, and the few cases which will develop after the ordinary period of isolation must be accepted and put down to profit and loss.

#### MUMPS.

During the first six months of the calendar year 1918 mumps continued to give annoyance, because of its continued prevalence. However, since the beginning of the last six months of the year, and indeed continuing until the end of the fiscal year 1919, mumps has been far less prevalent, both afloat and ashore, than at any time since the beginning of mobilization. Even under the best conditions cases of mumps are reported in greater numbers than any other communicable disease except influenza during an epidemic period. There were 17,832 cases admitted to sick list during the year 1918, making an admission rate of 35.39 per 1,000. During 1917, the first year of the war, there were 9,779 admissions for mumps, making an admission rate of 39.82 per 1,000. There were no fatalities in 1917, and three in 1918. Chart No. 5 shows the admission rate for mumps by weeks, calendar year 1918. It will be noticed that except during the epidemic of influenza the curve for mumps is constantly higher than that for any other disease.

#### SMALLPOX.

Three deaths from smallpox occurred in the Navy during the year 1918, all on the Asiatic station due to an oriental strain of the virus. Smallpox was occasionally reported from ships and stations in the United States in the mild form ordinarily seen in this country. There were in all 50 cases with 3 deaths as before mentioned. The

admission rate was 0.10 per 1,000, the death rate 0.6 per 100,000 (see No. 18), and the case-fatality rate 6 per 100.

Vaccination has been practiced in the Navy for so many years that, typhoid fever, smallpox is no longer a malady to be feared. Occasional deaths from this cause are, almost without exception, men who have contracted infection either in the Orient or in Europe.

A recent report from the U. S. S. *Oklahoma* states that whereas a number of men had failed to develop a "take" after the use of American vaccine, they "took" typically after vaccination with a vaccine manufactured in France.

	Number of vaccina- tions.	Positive.	Negative.
.....	51	3	48
.....	0	0	0
.....	48	11	37
.....	77	20	57
.....	79	15	64
.....	39	35	4
.....	120	82	38

Percentage of successful results with American vaccine, 22.5.

Percentage of successful results with French vaccine, 73.6.

The positive results obtained from the French vaccine were all in men who had had from two to four successive negatives following use of American vaccine.

Smallpox was reported from several ships and shore stations. Listing:

Quarantine station, San Francisco.

Quarantine station, Hampton Roads.

Quarantine camp, Seattle.

Receiving ship at Norfolk.

Quarantine station, Pensacola.

Woodward Industrial Institute, Minneapolis.

U. S. S. *Oklahoma*.

U. S. S. *Michigan*.

U. S. S. *Brooklyn*.

U. S. S. *Huron*.

#### TYPHOID FEVER

Typhoid fever continues to be a disease which no longer menaces the health and lives of the naval personnel as it did before the use of antityphoid vaccine. (See chart No. 19.)

During the year 1918, 83 cases of typhoid fever and paratyphoid fever occurred in the Navy resulting in 9 deaths. The admission rate was 0.16 per 1,000, the death rate 1.78 per 100,000, and the case-fatality rate 10.84 per 100.

Typhoid fever has been present and even prevalent in many communities surrounding naval stations and in many places to which men are on liberty and leave. Also the vast majority of the enlisted personnel are within the age periods which show the greatest incidence of the disease. Nevertheless the admission rate remains very low and the death rate (1.78 per 100,000) far below the death rate for

typhoid fever in the registration area of the United States which the year 1917 (1918 figures not available) was 13.4 per 100,000.

Typhoid fever is bound to occur occasionally in spite of all known preventive measures. Rarely, in certain individuals, antityphoid vaccination fails to protect, or immunity disappears before revaccination. Then, again, in spite of perfect sanitation a carrier will pass through and cause damage before recognition. Some so-called "residual" typhoid is inevitable.

Typhoid fever has been reported from:

Training station, San Francisco.  
 Training camp, Pelham Bay Park.  
 Training camp, San Diego.  
 Training camp, Key West.  
 Auxillary reserve school, Pelham Bay Park.  
 Detention camp, Deer Island.  
 U. S. S. *Minnesota*.  
 U. S. S. *Michigan*.  
 U. S. S. *Mississippi*.  
 U. S. S. *Calamaries*.

A comparison with the last 13 years is shown in the following table:

Year.	Number of cases.	Number of deaths.	Case-fatality rate per 100.	Annual admission rate per 1,000.	Death rate per 1,000.
1905.....	172	11	6.40	4.16	
1906.....	230	14	6.00	5.40	
1907.....	249	17	6.80	5.37	
1908.....	176	10	5.60	3.32	
1909.....	189	17	8.90	3.35	
1910.....	193	10	5.10	3.30	
1911.....	222	15	6.70	3.61	
1912.....	57	2	3.50	.92	
1913.....	22	4	18.10	.31	
1914.....	13			.19	
1915.....	18	1	5.50	.26	
1916.....	17			.23	
1917.....	66	1	1.50	.26	
1918.....	83	9	10.84	.16	

#### TUBERCULOSIS.

During the year 1918 there were admitted to the sick list 2 cases of tuberculosis, and there were 131 deaths, of which 85 were due to the disease in its chronic pulmonary form. Chart No. 18 shows the admission rates per 1,000 and the death rates per 100 for tuberculosis, all forms, by weeks, calendar years 1918.

The death rate from tuberculosis, all forms, was 26 per 100,000 and the death rate from chronic pulmonary tuberculosis was 128.9 per 100,000. (See chart No. 18.) There is a decided difference between death rates from tuberculosis in the Navy and those in the Army. The death rate for tuberculosis, all forms, in the registration area of the United States for the year 1917 was 146.4, while the death rate from tuberculosis of the lungs was 128.9. Such a discrepancy is, of course, to be expected, as the careful examination to which recruits are subjected should weed out all tuberculous subjects. However, some incipient cases do slip through, and these become aggravated under the stress and strain of intensive training more rapidly than they would under their normal conditions of living. Rarely is tuberculosis actually contracted during service in the Navy. The excel-

tary surroundings, plenty of fresh air, and good food are not conducive to its development or spread.

Year.	Number of cases.	Admission rate per 1,000.	Number of deaths.	Death rate per 100,000.
.....	311	5.43	40	69.78
.....	349	5.98	45	77.13
.....	319	5.19	39	63.51
.....	264	4.26	32	51.53
.....	325	4.92	30	45.50
.....	295	4.59	38	56.59
.....	253	3.71	36	52.90
.....	287	4.14	39	56.26
.....	796	3.24	61	24.83
.....	2,396	4.75	131	26.00

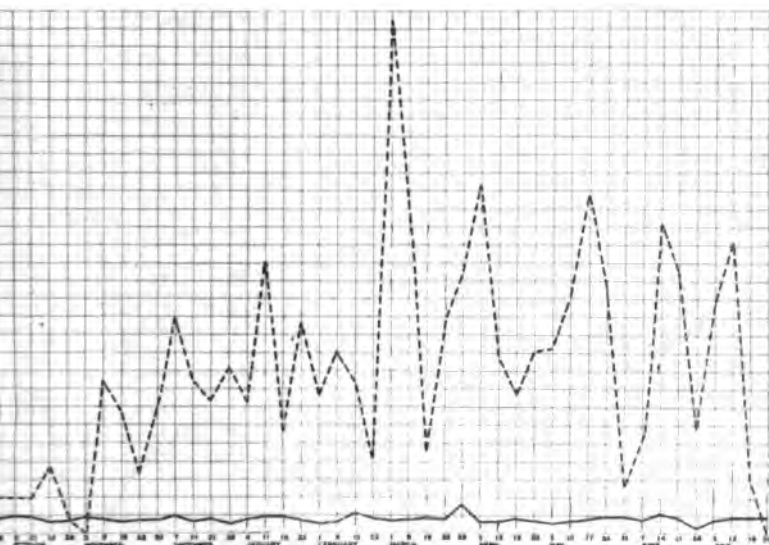


FIG. 20.—Annual admission rates per 1,000 and annual death rates per 100,000, by months, for tuberculosis (all forms), entire Navy, September, 1917, to July, 1918. Solid line, admission rates.

#### INTESTINAL PARASITES.

The routine examination for hookworm in recruits from the South continued throughout the year.

The following tabulations show the result obtained at the United States Naval Training Station, Hampton Roads, Va., in the examination of 4,987 recruits:

	Positive	Per cent
hookworm	1,206 or	24.10
Trichostrongylus	274 or	5.40
Trichostrongylus	119 or	2.30
Trichostrongylus	9 or	.18
Trichostrongylus	219 or	4.30
Trichostrongylus	18 or	.40
Trichostrongylus mediocanellata	1	
Trichostrongylus mansonii	4 or	.08



Four hundred and ninety-one treated cases were examined, the following results:

Hookworm	.....	Pos
Ascaris	.....	
Hymenolepis	.....	
Oxyuris	.....	
Trichuris	.....	
Strongyloides	.....	
Tenia mediocanellata	.....	
Total	.....	

The following tabulation shows the States from which 1,076 positive cases came:

State.	Hookworm.	Ascaris.	Hymenolepis.	Oxyuris.	Trichuris.	Strongyloides.	Tenia mediocanellata.	Schistosoma.
Alabama	37	4	4		3			
Arkansas	2		1		2			
District of Columbia	7	3	3		2			
Florida	47	7	2		2		1	
Georgia	150	14	15		7			
Kentucky	13	3	4		3			
Louisiana	9	2	3		5			
Maryland	30	14	2	2	7	1		
Mississippi	15	1	2					
Missouri	3	2	1	1				
New Jersey			1					
New Mexico	1							
North Carolina	391	47	21	2	23	4		
Oklahoma	1							
South Carolina	79	8	5		6	4		
Tennessee	34	16	5		20	2		
Texas	10	1	3	1	1			
West Virginia	232	100	26	1	76	3		
Porto Rico	12	2			10			
Philippine Islands	3	1			3			
Virgin Islands					1			
China		1						
Total	1,076	226	98	7	171	14	1	4

There were 7,625 specimens of stools examined at the United States Naval Medical School for hookworm, of which 450, or 5.9 per cent, were positive. These specimens were sent in from various ships and shore stations.

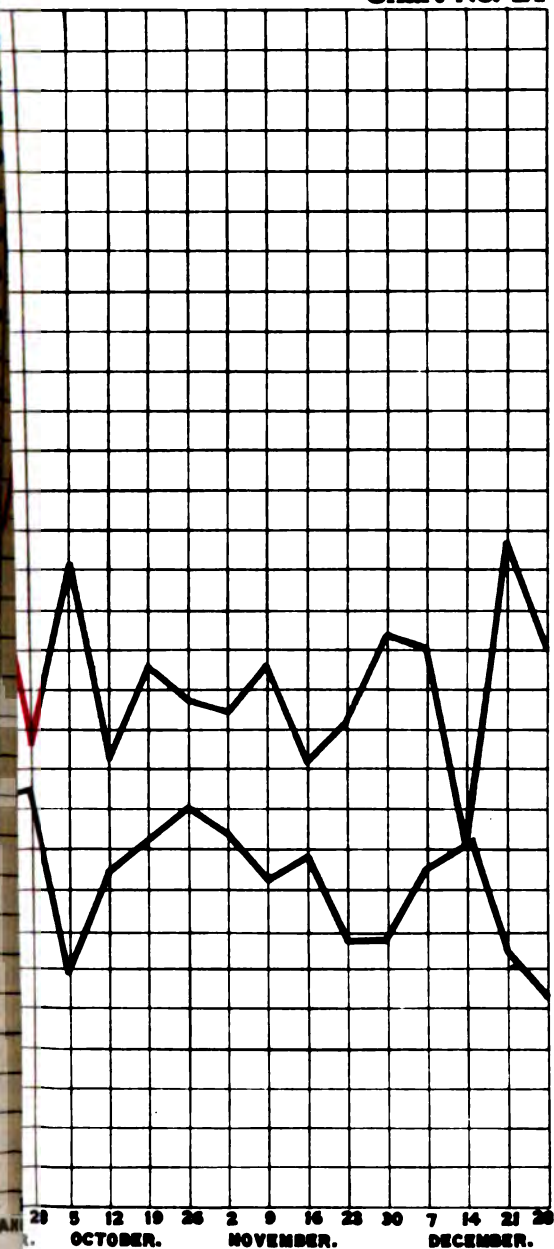
#### VENEREAL DISEASE.

The reduction in admission rates for venereal diseases secured in 1917 promises to continue under peace-time conditions, although at this time it is not possible to forecast what average rates will be after demobilization has been completed.

Certain factors making for low rates, such as the appeal to patriotism, excitement of war, and the greater demands of active duty in war time have undoubtedly lost much of their force since the armistice was signed. Moreover, a considerable proportion of the men who enlisted for war service had planned for the future and were already looking forward to marriage and the resumption of interrupted careers in civil life.

Enforced prohibition for men in uniform was an important factor in reducing the number of exposures to venereal disease from the beginning of the war and of course will continue to be a factor.

Chart No. 21



ENGRAVED AND PRINTED BY THE U.S. GEOLOGICAL SURVEY

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educational methods were enlarged in scope in 1917 and educational measures were carried on energetically under the obvious need of reducing the damage to the Navy resulting from disability, loss of service, and occupation of beds for the sick, which would have been very serious matters under war conditions with the greatly enlarged Navy if admission rates for these diseases had not been reduced.

The conveniences furnished by the Navy Department Commission on Training Camp Activities in the form of circulars and posters in ready for display as well as stereomotorgraphs and moving picture films were of great assistance to medical officers in carrying on instruction at naval stations and on board ship. Such aids furnish material for a talk or lecture and the illustrated material assists greatly in making educational efforts effective. The animated diagrams illustrating the physiology of the genito-urinary organs and the pathology of gonococcus infection, prepared under the direction of Lieutenant H. E. Kleinschmidt, Medical Corps, United States Navy, director of the social hygiene section of the Commission, are particularly worthy of mention.

The whole educational campaign directed toward making it impossible for any man in the Navy to remain ignorant or misinformed as to the nature and proper care of each of the venereal diseases and of the serious consequences which may follow infection is being continued.

The preparation and distribution of educational matter and information relating to the control of venereal diseases will be continued under the direction of a medical officer of the Navy in charge of the social hygiene section of the sixth division of the Bureau of Investigation.

The activities of the sixth division under the direction of Commander C. B. Mayo, United States Navy, apart from the special preparation of literature and other material of educational value along the lines of social hygiene instruction, will undoubtedly have an important indirect bearing upon venereal disease rates by providing better facilities for recreation, entertainment, and the more universal indulgence in athletics, as well as by arranging for the entertainment of enlisted men in civil communities and by providing wholesome amusement ashore. Continuation of organized efforts to secure enforcement of laws by civilian officials is also an important measure directed by this division.

Fortunately much progress has been made toward controlling the spread of venereal diseases in practically all States and municipalities in which members of the naval personnel go upon leave or liberty. The health departments have very generally availed themselves of the provisions of the Chamberlain-Kahn Act and have organized divisions of venereal disease for the purpose of enforcing improved measures relating to these diseases, their notification and treatment, suppression of prostitution, suppression of quackery and the dispensing of nostrums, and for educating the public in social hygiene as well as for the establishment of clinics and hospitals for the treatment of persons infected. The American Social Hygiene Association is assisting State and local health officials in educational measures and is also assisting very materially by arousing public opinion to their support.

The United States Public Health Service, through its Division of Venereal Diseases, has already accomplished much toward securing the enactment of proper State laws and local ordinances and the relation of the activities of health departments as well as by the development of educational programs in many communities and civil institutions.

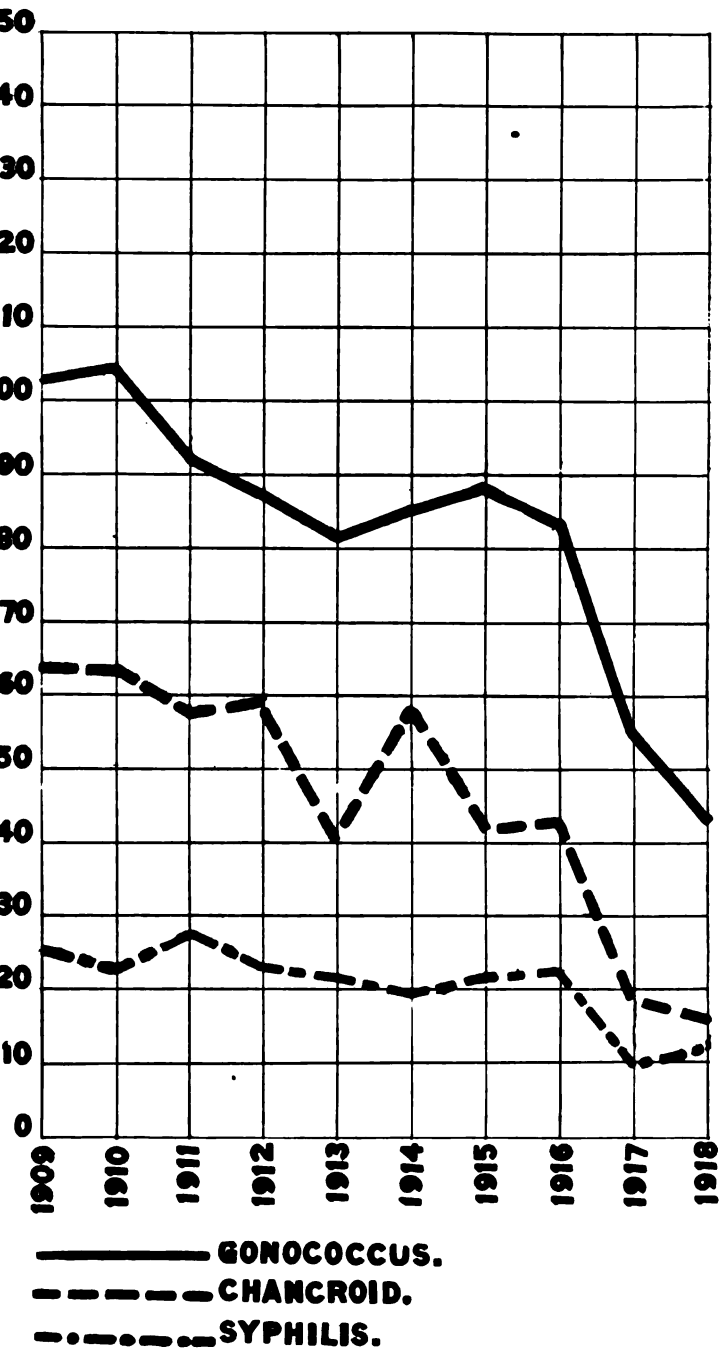
The United States Interdepartmental Social Hygiene Board consists in a very practical way by means of the funds at its disposal in protecting men of the service from exposure to venereal diseases by paying for the maintenance and subsistence in detention hospitals of persons infected with venereal disease who are judged to be a menace to the military or naval forces of the United States. In connection with educational researches and the development of better and more extensive facilities for teaching hygiene, including instruction in social hygiene and matters relating to the public health, in normal schools, colleges, and universities as well as by encouragement and endowment of scientific investigations into the diagnosis, immunologic reactions, and therapeutics of each of the venereal diseases, the board has adopted a program and established regulations for the expenditure of its resources which will be of great value in the future to the Army and Navy as well as to the entire country.

In spite of all these very desirable measures the need for effective prophylactic treatment continues. Reports from the service at large indicate that medical prophylaxis when administered sufficiently early has been highly effective in keeping the incidence of infection low. The status of medical treatment in advance of lesions, in relation to instruction, warning, and punishment, remains as reported last year. The order depriving men of their pay while incapacitated by disease resulting from misconduct has not been in force for a sufficient length of time under peace time conditions to permit an accurate judgment of its effect.

Chart No. 21 shows annual admission rates per 1,000 of complement for venereal disease by weeks, calendar year 1918, separately for the entire Navy and the forces ashore in the United States. The rates during September, October, and November are to be attributed to the prevalence of influenza in epidemic form rather than to the season of the year or to any change in the efficiency of measures directed specifically toward the control of venereal diseases.

Chart No. 22 shows separate admission rates for venereal diseases per 1,000 of complement, entire Navy, by years, 1909 to 1918.

The following table contains admission rates per thousand of complement for the different venereal diseases by years, 1909 to 1918, inclusive. Rates for years previous to 1909 have not been included because only since 1908 have instructions to medical officers required that every person infected with a venereal disease be admitted to the sick list. If the patient's condition is such that he need not be removed from duty the admission is made "for record only," and he is forthwith discharged to duty. It must be borne in mind that the rate for chancroids is not accurately indicative of the incidence of these infections since a great many of the patients finally admitted to the sick list with syphilis are first admitted with the diagnosis of chancroid.



22.—United States Navy: Admission rates for venereal diseases per 1,000 of complement, by years, 1909 to 1918.

*Admissions, admission rates, and sick days for venereal disease, by year.*

Year.	Average complement.	Admissions.	Admission rate per 1,000.	Total sick days.	Average sick days.
1909.....	57,172	10,961	191.71	136,761	12.4
1910.....	58,340	11,071	189.76	135,507	12.12
1911.....	61,399	10,827	176.33	161,358	14.9
1912.....	61,897	10,495	169.55	146,135	13.9
1913.....	65,926	9,434	143.09	141,378	14.9
1914.....	67,141	10,932	162.82	142,981	13.0
1915.....	68,075	10,318	151.56	150,939	14.6
1916.....	69,294	10,261	148.77	165,984	16.1
1917.....	245,580	24,786	88.71	231,254	9.3
1918.....	503,792	35,360	70.18	456,538	12.91

115 deaths.

*Admissions, admission rates, and sick days for syphilis, by years.*

Year.	Average complement.	Admissions.	Admission rate per 1,000.	Total sick days.	Average sick days.
1909.....	57,172	1,476	25.81	49,647	33.6
1910.....	58,340	1,315	22.54	47,893	34.1
1911.....	61,399	1,665	27.11	66,210	39.7
1912.....	61,897	1,424	23.00	56,759	39.8
1913.....	65,926	1,447	21.94	62,630	43.2
1914.....	67,141	1,332	19.83	53,016	39.8
1915.....	68,075	1,454	21.35	65,682	45.1
1916.....	69,294	1,642	22.25	67,814	43.9
1917.....	245,580	2,469	10.05	67,345	27.2
1918.....	503,792	5,960	11.83	160,975	27.00

114 deaths.

*Admissions, admission rates, and sick days for gonorrhea, by year.*

Year.	Average complement.	Admissions.	Admission rate per 1,000.	Total sick days.	Average sick days.
1909.....	57,172	5,851	102.51	28,801	4.90
1910.....	58,340	6,062	103.90	31,813	5.20
1911.....	61,399	5,658	92.15	33,946	5.90
1912.....	61,897	5,403	87.29	35,140	6.50
1913.....	65,926	5,320	80.69	33,204	6.20
1914.....	67,141	5,703	84.94	36,218	6.30
1915.....	68,075	5,985	87.91	35,404	5.90
1916.....	69,294	5,731	82.70	43,357	7.50
1917.....	245,580	14,099	57.41	101,062	7.16
1918.....	503,792	21,404	42.48	218,058	10.18

11 death.

*Admissions, admission rates, and sick days for chancroid, by year.*

Year.	Average complement.	Admissions.	Admission rate per 1,000.	Total sick days.	Average sick days.
1909.....	57,172	1,573	27.51	9,539	6.0
1910.....	58,340	1,968	33.73	9,975	5.0
1911.....	61,399	1,929	31.41	12,547	6.5
1912.....	61,897	2,169	35.04	12,634	6.8
1913.....	65,926	1,855	28.13	9,018	4.8
1914.....	67,141	2,908	43.31	14,749	5.0
1915.....	68,075	2,200	32.31	10,521	4.7
1916.....	69,294	2,426	35.01	12,816	5.2
1917.....	245,580	4,568	18.60	19,670	4.3
1918.....	503,792	7,996	15.87	77,506	9.7

## TRACHOMA.

Year.	Average comple- ment.	Admis- sions.	Rate per 1,000.
.....	61,897	3	0.048
.....	65,926	8	.12
.....	67,141	8	.12
.....	68,075	31	.45
.....	69,264	12	.17
.....	245,580	37	.15
.....	503,792	59	.12

W. C. BRAISTED.



## STATISTICS.

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The basis for all medical department statistics lies in the forms used in connection with the preparation and keeping of the "Health Record," which, with the physical requirements and health of the personnel of the Navy and Marine Corps.

**Table No. 1.**—Detailed statement of diseases and injuries for the calendar

This table gives an alphabetical list of disabilities, the Navy class and international numbers (from the Navy nomenclature), shows the method of picking up and disposing of all cases, the number of sick days or time lost to service (from Form F cards), and a summary with comparative data for previous years (from Form K).

The class number (Roman numeral) refers to the classification of the nomenclature, as follows:

- I. Diseases of blood.
- II. Diseases of circulatory system.
- III. Diseases of digestive system.
- IV. Diseases of ductless glands and spleen.
- V. Diseases of ear.
- VI. Diseases of eye and adnexa.
- VII. Diseases of genito-urinary system (nonvenereal).
- VIII. Communicable diseases transmissible by oral and nasal discharges.
- IX. Communicable diseases transmissible by intestinal discharges.
- X. Communicable diseases transmissible by insects and other arthropods.
- XI. Tuberculosis (all forms).
- XII. Venereal diseases.
- XIII. Other diseases of infective type.
- XIV. Diseases of lymphatic system.
- XV. Diseases of mind.
- XVI. Diseases of motor system.
- XVII. Diseases of nervous system.
- XVIII. Diseases of respiratory system.
- XIX. Diseases of skin, hair, and nails.
- XX. Hernia.
- XXI. Miscellaneous diseases and conditions.
- XXII. Parasites (fungi and certain animal parasites).
- XXIII. Tumors.
- XXIV. Female diseases and conditions.
- XXV. Injuries.
- XXVI. Poisons.

The international number refers to the classification of causes of death used by the International Commission (Paris, July 1 to 3, 1909).

In the case of wounds, etc., and poisons, key letters immediately following the title (e. g., Abrasion, unqualified "G") are given for classification of cause of such injury, and are interpreted as follows:

- A. Suicidal.
- B. Homicidal.
- C. Conflagration. Includes all injuries incident to general conflagration. Burns otherwise received are not classed hereunder.
- D. Accidental drowning or submersion.
- E. Traumatism by firearms, accidental. To include all injuries caused by the projectile, the blast from great guns, or from the piece when fired.
- F. Traumatism by explosion. To include powder, gas, compressed air, or steam explosions; also the explosion of a gun.
- G. Traumatism by fall.
- H. Traumatism by machines.
- I. Traumatism by other crushing.
- J. Traumatism due to athletic sports.
- K. Casualty in action.
- L. Traumatism due to other external violence not classified above.

**Table No. 2.**—Distribution of diseases and injuries among occupational groups for the calendar year.

(a) This table shows by occupational groups the class of disability, average complement, number of admissions, deaths, suicides, invalided from service (with rates per 1,000), and sick days; also the total for all occupations, admissions, deaths, invalided from service (with rates per 1,000 based on entire service complement), and sick days.

(b) The average complement for each occupational group is obtained from the Navy Year Book, except in case of prisoners, which is obtained from the office of the Judge Advocate General of the Navy, and grouped as follows:

Officers: Line, medical, dental, pay, chaplain, professor of mathematics, constructor, civil engineer, chief and warrant, and Marine Corps.

Midshipmen: All classes of this personnel.

Electricians: All classes of this rating.

Engine room: Machinist's mate and oiler.

Fireroom: Fireman and water tender.

All other artificers: Blacksmith, boiler maker, carpenter's mate, copper painter, plumber and fitter, printer, sailmaker's mate, ship fitter, and wright.

Clerical: Storekeeper and yeoman.

Culinary: Baker, commissary steward, cook, messman, ship's cook and steward.

Hospital corps: All ratings of this corps.

Marines (enlisted): All enlisted ratings except Marine Band and drum and trumpeter.

Musicians: Bandmaster, bugler, drummer, leader, musician, and trumpeter.

Prisoners: Detentioners and general court-martial prisoners.

Apprentices: Apprentice seamen.

Ordnance: Gunner's mate and turret captain.

All other deck ratings: Boatswain's mate, coxswain, landsman, mass arms, mate, quartermaster, seaman, and seaman-gunner.

(c) Number of admissions, deaths, suicides, invalided from service and sick days obtained from Form F cards.

(d) Rate per 1,000 is based on the average complement at the head of each group.

Death rate and invalided rate is obtained by multiplying the number of deaths or the number invalided by 1,000 and dividing by the average complement.

Percentage of sick is obtained by dividing the daily average of patients by the average complement and multiplying this product by 100.

Daily average of patients is obtained by dividing the sick days by the number of year days.

*Table No. 3.*—Deaths in the Navy and Marine Corps for the calendar year. This table is a summary of deaths, showing the cause, number and the distribution among the officers and men.

*Table 3a.*—Summary of admissions and deaths for casualties in the Navy, officers and enlisted men of Navy and Marine Corps, shown by months for the period of the war.

*Table No. 4.*—Discharged from the service by reason of physical disability during the calendar year. This table is a summary of those invalided from service or retired on account of physical disabilities, showing the disability, number, and distribution among the officers and men.

*Table No. 5.*—Surgical operations for the calendar year. This table is a summary of surgical operations performed, showing the condition for which the operation was performed, result of the operation, and the anesthesia employed.

*Table No. 6.*—Dental operations for the calendar year. This table is a summary of dental operations and treatment, together with the number of patients, each kind.

*Table No. 7.*—Recruiting statistics for the Navy and Marine Corps for the calendar year. This table is a summary of persons applying, examined, enlisted, showing the total number of applicants, total enlisted, number examined by the medical officer, number rejected by the medical officer for physical disqualifications, in the Navy for original and reenlistment, in the Marine Corps for original and reenlistment; also accepted applicants, number examined, and the number examined, etc., for all classes of the Naval Reserve and Marine Corps Reserve.

A list of the principal causes of rejection by the medical officer is appended.



## I.—DETAILED STATEMENT OF DISEASES AND INJURIES FOR THE CALENDAR YEAR 1918.

Diagnoses.	Taken up as—			Disposition.							Number of sick days this year.
	Remaining from last year.	Admitted.	Readmitted.	Duty.	Diagnosed changed.	Died.	Invalided from service.	Ret.	Transferred.	Continued to next year.	
<b>DISEASES.</b>											
about rectum (Class III, 110B)	10	337	172	306	41				143	30	7,970
about urethra (Class Inter. 125)		27	23	25	8				16	1	672
entamebic, liver (Class Inter. 115)			2		1				1		7
entamebic, unqualified XXII, Inter. 107		2	1	3							14
of axilla (Class XIV, Inter. 100)	5	206	46	198	12				37	9	3,481
of brain (Class XVII, 100)		6	2		1	5			2		83
of Cowper's glands VII, Inter. 127)		3	4	3	1				3		52
of eye and adnexa (Class Inter. 75C)		30	6	28	1		1		5	1	276
of kidney (Class VII, 122)	1	5	6	1	2		2		4	3	358
of kidney (perinephritic VII, Inter. 122)	1	12	12	9	6		1		7	2	1,010
of larynx (Class XVIII, 87)	1	2		2	1						48
of liver (Class III, Inter. 100)		5	4	1	1	3			4		214
of lung (Class XVIII, 98)	1	35	17	10	8	7	1		20	7	1,312
of lymph-node (Class Inter. 84)	4	130	61	119	13		2		50	11	3,293
of nasal septum (Class Inter. 87)	1	18	7	19	2				5		153
of pharynx (Class III, 1000)	5	96	31	91	5				34	2	824
of prostate gland (Class Inter. 126)		11	7	9	3				6		309
of salivary gland (Class Inter. 99B)	1	25	13	23	3				11	2	455
of scrotum (Class VII, 127)		39	14	37	2				13	1	537
of tongue (Class III, Inter. 87)		1	1	1	1						2
subphrenic (Class III, 118)	1	4	1	2		1			3		71
unqualified (Class Inter. 144)	113	5,371	1,270	5,288	270	2	8	4	1,016	166	64,227
of lens (Class VI, Inter. 55)		1	1				2				9
gastric (Class III, Inter. 55)		5	4	2	2		1		3	1	111
nondiabetic (Class Inter. 55)		7	1	5	1				2		63
Class XIX, Inter. 145C)	1	70	68	61	12		1		47	18	2,380
gally (Class IV, Inter. 55)		1	4	2	1				1	1	104
's disease (Class IV, Inter. 55)		3	3	2	1	1	1		1		95
(Class XVIII, Inter. 145C)	4	168	119	130	31				121	9	2,709
a (Class XXIII, Inter. 127)	1	14	9	12	4				8		387
ns about gall bladder III, Inter. 115)		7	6	4	2		2		3	2	449
ns about stomach (Class Inter. 117)		13	8	5	2		3		7	4	262
ns of peritoneum (Class Inter. 117)	44	316	358	197	105		83	1	275	57	11,229
ns, preputial (Class VII, 127)		9	5	6	3				8	2	188
uria (Class VII, Inter. 127)		32	34	19	16		2		26	3	732
(Class XIX, Inter. 145C)		4	2	4					2		16

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1918—C

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.
<b>DISEASES—Continued.</b>										
Alopecia areata (Class XIX, Inter. 145C).....		1	2	1					2	
Amaturosis (Class VI, Inter. 75C).....	1	19	16	8	8		7		12	1
Amblyopia (Class VI, Inter. 75C).....	5	122	101	28	34		78		77	11
Amputation stump (Class XXI, Inter. 149).....	2	133	129	58	15		45		90	56
Amyloid disease (Class XXI, Inter. 55).....			1		1					
Anemia of brain (Class XVII, Inter. 74).....		2	3	3	1				1	
Anemia, pernicious (Class I, Inter. 54).....	1	7	11	1	5	2	1		9	1
Anemia, simple (Class I, Inter. 54).....	1	98	48	75	28		1		34	1
Anemia, splenic (Class I, Inter. 54).....		4	4		2	1	3		2	
Aneurism (Class II, Inter. 81).....	3	21	18	8	7	5	9		12	1
Aneurism of heart (Class II, Inter. 79C).....		1			1					
Aneurism, varicose (Class II, Inter. 81).....		3	1	2					2	
Angina ludovici (Class III, Inter. 100).....	1	6	4	5	2	2			2	
Angina pectoris (Class II, Inter. 80).....	1	39	29	19	10	6	6		27	1
Angiospastic edema (Class XVII, Inter. 74).....		22	19	22	6		3		8	
Ankylosis of joint (Class XVI, Inter. 147).....	10	123	84	34	17		58		82	26
Ankylosis of ossicles (Class V, Inter. 76).....	3	5	4	4	1		3		3	
Anthrax (Class XIII, Inter. 22).....		4	1			2			2	
Anti-inoculation, unqualified, (Class XXI, Inter. 189A).....	2	1,956	155	1,947	61	2			98	
Aortitis (Class II, Inter. 81).....		10	12	4	3		2		10	
Aphasia (Class XVII, Inter. 74).....	1	3	3	1	3		1		2	
Apoplexy (Class XVII, Inter. 64).....		7	3			4	3		2	
Appendicitis, acute (Class III, Inter. 108).....	110	2,924	2,218	2,612	440	44			1,836	328
Appendicitis, chronic (Class III, Inter. 108).....	57	1,555	1,377	1,353	276	5	12	3	1,126	21
Arterial sclerosis, cerebral (Class XVII, Inter. 81).....		7	10	1	4		3		8	
Arterial sclerosis, general (Class II, Inter. 81).....	3	33	46	15	13		14		33	
Arthritis, acute (Class XVI, Inter. 147).....	37	810	495	743	164		4	2	357	7
Arthritis, chronic (Class XVI, Inter. 147).....	18	544	513	302	110		184		364	11
Arthritis, deformans (Class XVI, Inter. 48A).....	2	8	11	5	4		3		8	
Artificial anus (Class III, Inter. 109).....		1							1	
Ascariasis (Class XXII, Inter. 107).....		60	24	52	11				18	
Asthma (Class XVIII, Inter. 96).....	13	241	227	149	37		91		167	3
Astigmatism (Class VI, Inter. 75C).....	9	325	202	246	68		61		132	2
Athetosis (Class XVII, Inter. 74).....		2	4		2				4	
Atony of bladder (Class VII, Inter. 124).....	1	9	3	4	4				4	
Atony of stomach (Class III, Inter. 103).....		10	5	11	2				2	
Atrophy of bone or cartilage, (Class XVI, Inter. 146).....		2					2			
Atrophy of muscle (Class XVI, Inter. 149).....	6	57	51	19	9		40		38	
Atrophy of optic nerve (Class VI, Inter. 75C).....	1	16	17	1	7		12		12	
Atrophy of testicle (Class VII, Inter. 127).....		27	28	16	6		7	1	21	
Autointoxication, intestinal (Class III, Inter. 110B).....	8	1,283	254	1,256	115		1		153	2
Balanoposthitis (Class VII, Inter. 127).....	4	157	38	133	23				34	
Beriberi (Class XXI, Inter. 27).....		5	7	4	3				4	
Blastomycosis (Class XXII, Inter. 25B).....			1	1						
Blepharitis (Class VI, Inter. 75C).....	3	38	29	34	4		2		24	
Botulism (Class XIII, Inter. 164).....		30	17	26	6				14	
Bradycardia (Class II, Inter. 85).....		12	7	8	2				7	

## 1.—Detailed statement of diseases and injuries for the calendar year 1918—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>EASES—Continued.</b>											
osis (Class XIX, Inter.		11	2	11			1		1		73
ectasis (Class XVIII, 90)	1	9	6	2	3		5		5	1	561
itis, acute (Class XVIII, 89)	251	13,810	2,862	13,138	1,316	1	1	2	2,168	297	123,621
itis, chronic (Class XVIII, 90)	46	1,378	1,148	975	435		93	2	882	183	44,276
itis, fibrinous (Class I, Inter. 90)		10	6	12					4		265
itis, acute (Class XVI, Inter.	7	208	101	301	20				70	15	2,211
itis, chronic (Class XVI, In-	4	145	129	105	28		16		108	21	5,674
disease (Class XVII, 74)	1	3	2	1			1		3	1	274
is in bladder (Class VII, 123)	2	11	20	9	10				13	1	505
is in ureter, impacted (Class VII, Inter. 123)	1	34	35	36	9		1		21	3	1,217
is in urethra, impacted (Class VII, Inter. 123)		4	5	3	2				3	1	158
is of pancreas (Class III, 118)		1		1							2
as (Class XIX, Inter.	2	53	14	47	2		10		10		685
ile (Class XIII, Inter. 143)	4	282	71	285	4	2			54	12	2,060
ma (Class XXIII, Inter.	1	8	8	1	2	7			5	2	391
spasm (Class III, Inter.		7	1	6					2		81
fossicle (Class V, Inter.		2	1				1		2		36
f tooth (Class III, Inter.	2	192	163	192	16		17		122	10	2,636
diphtheria bacillus (Class Inter. 9b)	25	1,794	1,075	1,587	124		1		1,160	22	28,246
meningococcus (Class Inter. 61a)	188	2,794	1,213	2,838	58		67		1,207	25	75,333
typhoid bacillus (Class Inter. 1a)		1							1		68
sy (Class XVII, Inter.		3		1			2				18
(Class VI, Inter. 75C)	4	32	26	11	6		19		22	4	1,280
is (Class XIII, Inter. 144)	69	3,354	896	3,225	169	6	8	1	767	143	47,676
spinal fever (Class VIII, 61a)	66	587	515	272	164	205	43		409	75	32,864
n, accumulation of (Class Inter. 76)		22	14	21	5				10		173
on (Class VI, Inter. 75C)	2	60	38	56	11				32	1	516
oid (Class XII, Inter. 38A)	109	7,233	1,578	7,274	535			1	931	179	44,067
oid of lymph-node (Class Inter. 38A)	53	763	655	930	131				364	46	32,470
ox (Class VIII, Inter.	27	178	124	175	23				124	7	3,674
n (Class XIX, Inter.	3	18	11	18	2				9	3	309
itis, acute (Class III, In-	18	489	204	461	51	2			169	28	9,579
itis, chronic (Class III, 115)		12	9	9	3				8	1	230
itis, acute, Class III, 115)	2	142	85	122	36				56	15	3,098
itis, chronic (Class III, 115)	1	57	39	31	20		5		35	6	1,890
chiasis (Class III, Inter.	3	49	59	31	26		2		46	6	1,943
, Asiatic (Class IX, Inter.		2	1		1	1			1		1
itis (Class XVI, Inter. 149)		4	2	1			1		2	2	64
oma (Class XXIII, Inter.	1	7	6	6	4				4		361
(Class XVII, Inter. 72)	1	44	35	15	8		19		33	5	1,918
chronic progressive (Class I, Inter. 74)		4	3	1	1		1		3	1	86
itis (Class VI, Inter. 75C)	10	46	60	18	16		27		50	5	1,795
ial contraction (Class Inter. 145C)	3	57	52	37	7		19		42	7	1,538
t of skin (Class XIX, In-		43	48	43	13		5	1	27	2	2,837

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1918—Con

Diagnoses.	Rem.	A.	R.A.	D.	C.	DD.	IS.	R.	T.	Cont.	D.
<b>DISEASES—Continued.</b>											
Cirrhosis of liver, atrophic (Class III, Inter. 113).....	1	4	4	1	1	2	4		4		
Cirrhosis of liver, hypertrophic, (Class III, Inter. 113).....		6	6	2	3	1	2		4		
Clavus (Class XIX, Inter. 145C).....	49	11	47	2			2		7		2
Colitis, acute (Class III, Inter. 105B).....	1	222	86	221	29		1		53		5
Colitis, chronic (Class III, Inter. 105B).....	2	27	22	20	6		4		17		4
Color blindness (Class VI, Inter. 75C).....	1	70	35	39			58		7		2
Comedo (Class XIX, Inter. 145C).....		1		1							
Congestion of kidney (Class VII, Inter. 123).....		11	2	11	1				1		
Congestion of lung, acute (Class XVIII, Inter. 94).....		20	5	20	2				3		
Conjunctivitis, acute (Class VI, Inter. 75A).....	29	1,071	299	1,023	95		1		256		24
Conjunctivitis, chronic (Class VI, Inter. 75A).....	3	87	93	76	22		11		59		15
Conjunctivitis, phlyctenular, (Class VI, Inter. 75A).....	1	25	19	27	2				16		
Constipation (Class III, Inter. 110B).....	15	1,631	299	1,593	151		7		174		20
Constitutional inferiority (mental) (Class XV, Inter. 68).....	48	808	573	110	170		644	3	449		53
Constitutional psychopathic state (Class XV, Inter. 68).....	13	232	228	37	75		149	1	185		26
Contracture of joint (Class XVI, Inter. 147).....		10	11	6	3		4				8
Contracture of muscle, fascia, tendon, or sheath (Class XVI, Inter. 149).....	4	79	42	44	8		30	1	36		6
Cornu (Class XIX, Inter. 145C).....		5	2	5					2		
Coxa vara (Class XVI, Inter. 147).....		4	6	2	2		2		4		
Cramp of ciliary muscle (Class VI, Inter. 75C).....		4	2	2	1		2		1		
Cramp of muscle (Class XVI, Inter. 149).....		36	14	31	9				8		2
Curvature of spine (Class XVI, Inter. 35C).....	4	45	25	12	11		22		22		7
Cyclitis, (Class VI, Inter. 75C).....		4	5	4	1				4		
Cysticercus, unqualified (Class XXII, Inter. 107).....		1		1							
Cystitis, acute (nonvenereal) (Class VII, Inter. 124).....	9	199	88	174	43		1		65		13
Cystitis, chronic (nonvenereal) (Class VII, Inter. 124).....	3	91	71	51	24		25		54		11
Cyst of brain (Class XVII, Inter. 74).....		2	2	1	1		1		1		
Cyst of kidney (Class VII, Inter. 122).....	1	1					1		1		
Cystoma (Class XXIII, Inter. 46).....	5	121	67	110	18		1		57		7
Dacryoadenitis (Class VI, Inter. 75C).....		5	3	4	1				2		1
Dacryocystitis (Class VI, Inter. 75C).....		39	31	28	4		4		29		5
Deafness (Class V, Inter. 76).....	8	103	94	35	25		54		80		11
Deformity of external ear, acquired (Class V, Inter. 76).....		1	2	2	1						
Deformity of nose, acquired (Class XVIII, Inter. 86).....		62	70	64	9		2		55		2
Deformity of penis, acquired (Class VII, Inter. 127).....		1	1	1					1		
Deformity of stomach, acquired (Class III, Inter. 103).....	1			1							
Dementia paralytica (Class XV, Inter. 67).....	13	27	89	2	23	5	12		70		17
Dementia praecox (Class XV, Inter. 68).....	60	373	844	14	160	3	288	3	601		118
Dengue (Class X, Inter. 19).....	25	1,079	320	1,061	82				255		6
Dentition (Class XXI, Inter. 189A).....	1	32	8	20	2		13		6		
Dermatitis unqualified (Class XIX, Inter. 145C).....	5	356	137	328	54		2	1	91		22
Dermatitis venenata (Class XIX, Inter. 145C).....		185	30	188	2				22		3
Detachment of retina (Class VI, Inter. 75C).....	1	6	5	1	1		5		5		
Deviation of nasal septum (Class XVIII, Inter. 86).....	20	1,469	1,146	1,278	162		5		1,052		138

## 1.—Detailed statement of diseases and injuries for the calendar year 1918—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
CASES—Continued.											
Inspidius (Class XXI, 5).		16	17	10	7		4		12		651
Mellitus (Class XXI, 40).	5	87	96	30	20	11	30		84	13	3,926
Undetermined (Class Inter. 139A).		1						1			11
Acute cardiac (Class Inter. 79C).		35	15	11	5	16	1		13	4	452
Chronic cardiac (Class Inter. 79C).		12	9	6	1		3		9	2	353
Inflammation of stomach, acute (Class II, Inter. 103).		10	7	6	3	3			4	1	57
Inflammation of stomach, chronic (Class II, Inter. 103).		1	1		1				1		7
Ulcer (Class VIII, Inter. 9).	38	1,818	1,482	1,545	451	48		1	1,237	56	45,910
Gastritis (Class III, Inter. 1).		3	5	3	2				4		240
Enteritis (Class III, Inter. 25).		25	21	22	5				14	5	365
Enteritis, bacillary (Class IX, 4A).		25	18	26	2				8	7	592
Enteritis, balantidic (Class Inter. 14B).		2		2							77
Enteritis, entamebic (Class IX, 14C).	8	94	92	97	14		3		65	15	3,698
Enteritis, unclassified (Class Inter. 14D).	3	614	399	572	58	1		1	327	57	12,364
Enteritis (Class XIX, Inter. 1).		15	4	11	5				2	2	280
Myositis, progressive muscular (Class XVII, Inter. 63).	1	1	2	1	1		1		1		377
Myositis (Class XIX, Inter. 1).		6	3	7	2				1		200
Myositis (Class VI, Inter. 75C).		2	1	1			1		1		27
Myositis (Class XIX, Inter. 145C).	11	328	170	291	44		8	1	128	37	6,810
Pharyngitis, glottis (Class XVIII, 7).		2	1	2					1		12
Pharyngitis, lung (Class XVIII, 4).		4			2	2					14
Pharyngitis, inflammation of uvula (Class III, 60).		7	2	6					3		41
Pharyngitis (Class II, Inter. 82).		12	10	2	3	6			8	3	363
Pneumonia, pulmonary (Class Inter. 97).		6	5	4	3		1		3		205
Pneumonitis, acute (Class XVII, 40).		5	2		4	2			1		117
Pneumonitis, acute (Class II, 8).	12	155	106	56	89	7	4		99	18	6,355
Pneumonitis, chronic (Class II, 9B).	5	439	279	93	60	5	296	1	220	48	12,101
Prostatitis, acute (Class Inter. 126).		3	5	3	2				3		53
Prostatitis, acute (Class III, Inter. 3).	2	2,109	718	2,198	118	1			401	112	16,984
Prostatitis, chronic (Class III, 105B).		23	24	17	8			1	18	3	721
Prostatitis (Class III, Inter. 178).		270	359	19	1	1			30	38	5,983
Prostatitis (Class III, Inter. 1).		1		1							11
Prostatitis, acute (nonvenereal) (Class VII, Inter. 127).	6	399	115	359	40		1		105	15	4,622
Prostatitis, chronic (nonvenereal) (Class VII, Inter. 127).	2	42	42	38	14		2	1	29	2	1,030
Prostatitis (Class XVIII, 97).		1		1							14
Prostatitis (Class XVII, Inter. 60).	40	640	581	138	124	4	494		453	48	18,431
Prostatitis (Class VI, Inter. 74).		12	14		3		7		13	3	489
Prostatitis (Class VI, Inter. 75C).		2	2	1	1				2		176
Prostatitis (Class XVIII, Inter. 40).		40	24	35	6				21	2	454
Prostatitis (Class XXIII, Inter. 10).		10	11	9	4				7	1	353
Prostatitis (Class XIII, Inter. 22).	268	155	222	62	7				146	8	6,549
Prostatitis (Class XXII, Inter. 3).		3	3	3	1				2		40
Prostatitis, multifforme (Class Inter. 145C).	1	42	11	40	3				9	2	774

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1918—Co

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.
<b>DISEASES—Continued.</b>										
Erythema nodosum (Class XIX, Inter. 145C).....		20	13	19	3				9	2
Erythema scarlatiniforme (Class XIX, Inter. 145C).....	1	13	9	16	2				5	
Erythema simplex (Class XIX, Inter. 145C).....	1	73	14	73	6				9	
Erythrasma (Class XXII, Inter. 25B).....		1		1						
Erythromelalgia (Class XXI, Inter. 142).....		3		2					1	
Esophagitis (Class III, Inter. 101).....		1							1	
Eustachian salpingitis, acute (Class V, Inter. 76).....		13	7	10	3				7	
Eustachian salpingitis, chronic (Class V, Inter. 76).....		23	12	12	4		5		12	2
Exophthalmic goiter (Class IV, Inter. 51).....		77	80	28	17		43		63	6
Favus (Class XXII, Inter. 25B).....	2	1	3							
Fermentation, gastric (Class III, Inter. 103).....		67	16	55	8				14	6
Fermentation, intestinal (Class III, Inter. 105B).....	1	131	21	126	8				16	3
Fever of unknown cause (Class XIII, Inter. 189A).....	5	344	183	328	76				117	11
Fibroma (Class XXIII, Inter. 46).....		48	18	42	5	1	2		15	1
Filariasis (Class X, Inter. 19).....			1	1						
Fissure of anus (Class III, Inter. 110A).....		42	35	41	14		1		19	2
Fissure of skin (Class XIX, Inter. 145C).....	1	17	3	16	1				2	2
Fistula, biliary (Class III, Inter. 115).....		2	1	1	1				1	
Fistula, fecal (Class III, Inter. 110A).....	2	7	8	6	2	1			6	1
Fistula in ano (Class III, Inter. 110A).....	14	256	232	211	46		17		206	22
Fistula of lachrymal sac (Class VI, Inter. 75C).....		3	3	3	1				2	
Fistula of larynx (Class XVIII, Inter. 87).....		1	1	2						
Fistula of urethra (Class VII, Inter. 125).....		19	22	19	1		1		18	1
Fistula, urethro-vesical (Class VII, Inter. 125).....		1		1						
Flagellate diarrhea (Class XXII, Inter. 105B).....		4	2	1	3				2	
Folliculitis decalvans (Class XIX, Inter. 145C).....		8	8	7	5			1	2	1
Foreign body in auditory canal (Class V, Inter. 76).....		1		1						
Foreign body in esophagus (Class III, Inter. 101).....		1	3	1	2				1	
Foreign body in frontal sinus (Class XVIII, Inter. 146).....			1	1						
Foreign body in intestines (Class III, Inter. 110B).....		2	2		2				2	
Foreign body in pharynx (Class III, Inter. 186).....		1	1	1					1	
Foreign body in rectum (Class III, Inter. 110B).....		2	1	2					1	
Foreign body in stomach (Class III, Inter. 103).....		2	4	4					2	
Foreign body in ureter (Class VII, Inter. 122).....		6	6	6	3				3	
Foreign body in urethra (Class VII, Inter. 125).....		2	1	2					1	
Functional derangement of liver (Class II, Inter. 115).....	2	79	10	76	2				10	3
Furunculosis (Class XIII, Inter. 143).....	26	1,006	403	1,635	55			2	295	49
Ganglion (Class XVI, Inter. 149).....		29	18	27	1				17	2
Gangosa (Class XIII, Inter. 19).....		1		1						
Gangrene (Class XXI, Inter. 142).....	1	4	5	3	4				2	1
Gangrene, infective (Class XIII, Inter. 142).....		5	3	6	1				1	
Gastritis, acute catarrhal (Class III, Inter. 103).....	20	1,171	363	1,134	146		2	3	228	41
Gastritis, chronic catarrhal (Class III, Inter. 103).....	9	481	466	359	181		40	1	306	60
Gastritis, acute phlegmonous (Class III, Inter. 103).....	1	105	13	103	4				9	3



## 1.—Detailed statement of diseases and injuries for the calendar year 1918—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>EASES—Continued.</b>											
nodentitis, (Class III, 105B)	1	118	44	107	17				37	2	1,513
teritis (Class III, Inter.	7	2,482	868	2,414	223	2	3	1	610	114	22,150
osis (Class III, Inter.	1	34	25	17	9		7		20	7	1,173
curvatum (Class XVI, 147)		2	3				2	1	2		180
measles (Class VIII, 19)	16	2,190	1,192	2,268	129				889	12	24,085
m (Class XXI, Inter.		1	1	1			1				0
is (Class III, Inter. 99A).	2	70	22	70	3		1		14	6	1,077
ia, acute (Class VI, In- C).		5	5	3	2				4	1	295
ia, chronic (Class VI, 75C)		2	1	1			2				8
(Class XXIII, Inter. 46)		4	3		4	2			1		398
4, acute (Class III, Inter.		19	6	18	4				3		142
4, chronic (Class III, In- B).		2					2				42
ria (Class XXI, Inter.		21	18	15	7		2		15		440
Class IV, Inter. 88)	4	234	183	91	34		112		160	24	7,398
titis, acute (nonvene- Class VII, Inter. 127)		1	1	1	1						2
eus infection of con- va (Class XII, Inter.		2	64	63	51	25	3		47	3	1,638
eus infection of joints XII, Inter. 38B)	25	339	395	272	64	1	111		265	46	17,407
eus infection of lymph Class XII, Inter. 38B)	11	134	114	164	24		1		61	9	3,870
eus infection of urethra XII, Inter. 38B)	346	19,129	5,740	20,681	641		149	13	3,256	475	152,918
eus infection, unquali- Class XII, Inter. 38B)	102	1,741	1,372	2,129	186		17	4	792	87	44,301
ute (Class XXI, Inter.	1	7	3	8	1				2		111
chronic (Class XXI, In- C)		1	1	1	1						130
valgus (Class XVI, In- B).	3	45	41	38	2		13		31	5	2,105
varus (Class 149)	1				1						10
r toe (Class XVI, Inter.	9	128	106	107	9		23		86	18	4,644
er (Class XVIII, Inter.		18	11	18	3		1		7		138
ne (Class XXI, Inter.	3	346	32	334	16		2		22	7	1,498
lock (Class II, Inter. 85)		15	10	6	4	1	3		9	2	279
mesis (Class III, Inter.		1		1							1
cele of spermatic cord VII, Inter. 127)		1		1							17
ma of external ear, non- otic (Class V, Inter. 76)		3		3							8
myelia (Class XVII, In- B)		1	1	1					1		8
rrhachis (Class XVII, In- B)	1				1						
ria, renal (Class VII, In- 2)	2	44	39	33	15		4		29	4	1,275
opsia (Class VI, Inter.	1	3	4				4		3	1	280
egia, old (Class XVII, 96)		16	24	4	5	1	9		18	3	835
obinuria (Class VII, In- 2)		4	5	2	2		1		4		132
obinurie fever (Class Inter. 19)		2	2	1					3		88
bilia (Class I, Inter. 98)	1	8	6	5	2	1	2		4	1	143
tylis (Class XVIII, In- B)		36	32	18	21				25	4	715
chage, intestinal (Class Inter. 110B)		11	7	9	2				7		325
chage into cerebellum XVII, Inter. 64)		3	3	1	2	1	1		1		127
chage into cerebrum XVII, Inter. 64)	3	17	15	1	6	7	4		14	3	1,638

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1918—C

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.
<b>DISEASES—Continued.</b>										
Hemorrhage into labyrinth (Class V, Inter. 76).....		5	2	2	1		1		3	
Hemorrhage into retina (Class VI, Inter. 75C).....	1	4	6	2	1		2		6	
Hemorrhage into suprarenal gland (Class IV, Inter. 85).....		1		1						
Hemorrhage, subdural (Class XVII, Inter. 64).....		2	3	1	1	2			1	
Hemorrhage under conjunctiva, nontraumatic (Class VI, Inter. 75C).....		6	5	5	3				3	
Hemorrhoids (Class III, Inter. 83).....	42	1,998	1,669	1,835	188		18	2	1,491	175
Hemothorax (Class XVIII, Inter. 93).....		1			1					
Hernia, epigastric (Class XX, Inter. 109).....		35	32	31	9		1	1	22	3
Hernia, femoral (Class XX, Inter. 109).....	2	34	20	24	10				19	3
Hernia, inguinal (Class XX, Inter. 109).....	139	2,802	2,686	2,391	314	2	174	3	2,349	394
Hernia, internal (Class XX, Inter. 109).....		4	3	2	1	1	1		1	1
Hernia, lumbar (Class XX, Inter. 109).....		3			2				1	
Hernia of (muscle, fascia, tendon, or sheath) (Class XVI, Inter. 149).....	2	13	19	19	5		1		7	2
Hernia, umbilical (Class XX, Inter. 109).....		12	13	8	4				11	2
Hernia, ventral (Class XX, Inter. 109).....	8	110	115	91	19		13		85	25
Herpes (Class XIX, Inter. 145C).....	4	131	39	136	12		1		23	2
Hiccough (Class XVII, Inter. 74).....		8	2	8					2	
Hodgkin's disease (Class XIV, Inter. 53A).....	1	2	3	2	1				2	1
Hordeolum (Class VI, Inter. 75C).....		84	16	89	3				6	2
Hydrocele of spermatic cord (Class VII, Inter. 127).....	3	88	57	72	16		3		51	6
Hydrocele of tunica vaginalis (Class VII, Inter. 127).....	2	179	155	157	31		3		135	10
Hydrocephalus, acquired (Class XVII, Inter. 74).....		1	1	1		1				
Hydronephrosis (Class VII, Inter. 122).....		8	13	6	3		1		9	2
Hyperesthesia of retina (Class VI, Inter. 75C).....	1	5	1	4	1		1		1	
Hyperchylia, gastric (Class III, Inter. 103).....	2	41	41	34	13		2		30	5
Hyperemia of conjunctiva (Class VI, Inter. 75C).....		2	1	2					1	
Hyperidrosis (Class XIX, Inter. 145C).....		4	1	5						
Hypermetropia (Class VI, Inter. 75C).....	4	270	144	227	45		39		96	11
Hypernephroma (Class XXIII, Inter. 46E).....	1						1			
Hypertrophy of bone (Class XVI, Inter. 146).....	3	89	70	68	16		8		64	6
Hypertrophy of heart (Class II, Inter. 79C).....		15	15	15	6		1		6	2
Hypertrophy of mammary gland (Class XXI, Inter. 133).....		5	6	1	3				4	3
Hypertrophy of tonsil (Class III, Inter. 100).....	28	2,434	1,041	2,299	135		1	2	960	106
Hypochlorhydria (Class III, Inter. 103).....		76	62	49	42				38	9
Hypochondriasis (Class XVII, Inter. 68).....	1	29	16	16	3		13		14	
Hysteria (Class XVII, Inter. 73A).....	16	370	323	196	117		159	1	204	32
Icthyosis (Class XIX, Inter. 145C).....		7	7	3	1		2		5	3
Imbecility (Class XV, Inter. 74).....	7	199	72	22	20		163	1	64	8
Impacted feces (Class III, Inter. 110B).....		8	6	6	4				4	
Impetigo contagiosa (Class XIX, Inter. 145C).....	5	226	108	237	19				74	9
Impetigo herpetiformis (Class XIX, Inter. 145C).....		3	2	3	1				1	
Impetigo simplex (Class XIX, Inter. 145C).....		30	4	29	1				3	1
Incontinence of urine (Class VII, Inter. 124).....	6	237	198	134	41		78	2	160	26



Table 1.—Detailed statement of diseases and injuries for the calendar year 1918—Contd.

Diagnoses.	Rem.	A.	R.A.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>DISEASES—Continued.</b>											
of lung (Class XVIII, Inter. 10).....		2	1	.....	1	1	.....	.....	1	.....	8
inflammation of salivary gland (Class III, Inter. 99B).....		15	5	13	2	.....	.....	.....	3	2	95
inflammation of spermatic cord (Class VII, Inter. 127).....		6	7	8	2	.....	.....	.....	3	.....	184
ing nail (Class XIX, Inter. 145C).....	315	121,225	40,821	112,049	11,168	4,158	2	9	32,955	2,020	1,059,416
ia (Class XXI, Inter. 145C).....	15	963	183	863	15	.....	.....	2	142	19	10,880
iciency of ocular muscle (Class VI, Inter. 75C).....		16	9	14	3	.....	.....	.....	8	.....	112
igo (Class XIX, Inter. 145C).....	4	73	76	34	15	.....	28	.....	70	6	1,953
oroiditis (Class VI, Inter. 75C).....		14	1	13	1	.....	.....	.....	1	.....	60
ellitis (Class VI, Inter. 75C).....		3	1	3	.....	.....	.....	.....	1	.....	17
ellitis (Class VI, Inter. 75C).....	1	6	6	2	3	.....	2	.....	6	.....	443
ee, acute infective (Weill's) (Class XIII, Inter. 145C).....	11	204	162	170	51	.....	14	.....	126	16	6,390
is (Class VI, Inter. 75C).....		43	20	29	10	.....	.....	.....	23	11	976
is, phlyctenular (Class VI, Inter. 75C).....	1	108	80	80	18	.....	12	.....	60	10	3,638
termia (Class XIX, Inter. 145C).....		20	15	18	3	.....	.....	.....	12	2	702
iritis (Class VI, Inter. 75C).....		2	1	1	.....	.....	1	.....	1	.....	70
is (Class XIX, Inter. 145C).....		9	7	7	1	.....	1	.....	5	2	156
itis, acute (Class XVIII, Inter. 87).....		5	4	6	2	.....	.....	.....	1	.....	76
itis, chronic (Class II, Inter. 87).....	41	923	217	908	60	2	.....	.....	179	32	10,464
y (Class XIII, Inter. 17).....	2	85	72	57	19	.....	13	.....	56	14	2,958
nia (Class I, Inter. 53C).....	1	2	2	2	2	.....	.....	.....	3	.....	578
termia (Class XIX, Inter. 145C).....		10	8	2	3	3	1	.....	7	2	314
na (Class VI, Inter. 75C).....		1	.....	1	.....	.....	.....	.....	.....	.....	7
planus (Class XIX, Inter. 145C).....	1	20	11	4	2	.....	15	.....	8	3	857
ruber (Class XIX Inter. 145C).....		8	4	6	3	.....	.....	.....	2	1	422
ia (Class XXIII, Inter. 46).....	2	3	.....	3	.....	.....	.....	.....	.....	.....	33
otor ataxia (Class XVII, Inter. 62).....	53	24	41	10	.....	.....	1	.....	23	4	1,047
body in joint (Class XVI, Inter. 147).....	3	28	40	12	15	.....	11	.....	27	6	1,964
f substance of (bone or age) (Class XVI, Inter. 147).....	5	35	39	21	3	.....	16	.....	32	7	1,766
erythematous (Class XIX, Inter. 145C).....	2	4	3	1	.....	.....	4	.....	2	2	123
adenitis, acute (Class XIX, Inter. 84).....	3	2	2	4	.....	.....	2	.....	1	.....	158
adenitis, chronic (Class XIX, Inter. 84).....	56	1,101	606	1,028	181	.....	1	2	494	57	28,616
angiectasis (Class XIV, Inter. 84).....	5	135	141	116	45	.....	7	.....	94	19	5,790
angitis (Class XIV, Inter. 84).....		2	4	2	.....	.....	2	.....	2	.....	116
ia (Class X, Inter. 4).....	2	241	82	230	21	.....	1	.....	66	7	2,931
ations, congenital (Class XX, Inter. 150).....	29	2,701	1,519	3,128	299	4	2	1	754	91	39,717
ing (Class XXI, Inter. 145C).....	5	102	74	52	16	.....	48	.....	55	10	2,466
rition (Class XXI, Inter. 145C).....	1	44	15	38	8	.....	.....	1	11	2	427
itis, acute (Class V, Inter. 46).....	1	14	5	6	3	.....	6	.....	5	.....	152
itis, chronic (Class V, Inter. 146).....	26	319	153	226	84	6	3	.....	131	48	16,160
ation (Class VII, Inter. 146).....	3	55	74	43	5	.....	35	.....	43	6	2,503
ia (Class VII, Inter. 6).....		14	12	5	8	.....	2	.....	11	.....	193
ino-pericarditis (Class II, Inter. 77).....	390	6,915	3,188	6,476	706	112	.....	1	3,046	132	78,010
bolia, involutional (Class Inter. 68).....		1	1	1	1	.....	.....	.....	.....	.....	36
		24	31	3	19	.....	4	.....	27	.....	583

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1918—Co

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.
<b>DISEASES—Continued.</b>										
Menière's disease (Class XVII, Inter. 76).....		5	8	1	1		2		6	2
Meningitis, cerebral (Class XVII, Inter. 61).....		24	11	1	9	11			8	6
Meningitis, cerebro-spinal (Class XIII, Inter. 61).....	12	203	121	57	92	41	8		115	23
Meningitis, spinal (Class XVII, Inter. 61).....	1	12	12	5	4	1	2		10	3
Metatarsalgia (Class XVI, Inter. 149).....	2	44	35	31	18		5		26	1
Migraine (Class XXI, Inter. 74).....		120	47	109	18		1	1	33	5
Mikulicz's disease (Class XXI, Inter. 99B).....		1		1						
Miliaria (Class XIX, Inter. 145C).....		14	3	14	1				2	
Milium (Class XIX, Inter. 145C).....		1		1						
Mixed benign tumor (Class XXIII, Inter. 46).....		8	4	4	3	1	1		3	
Mixed malignant tumor (Class XXIII, Inter. 39-45).....		1	1		1	1				
Molluscum contagiosum (Class XIX, Inter. 145C).....		4	1	4					1	
Mumps (Class VIII, Inter. 19).....	1,314	17,832	10,317	17,812	882	3		8	10,311	447
Mycetoma (Class XXII, Inter. 25B).....		4	6	3	2				4	1
Myelitis, disseminated (Class XVII, Inter. 63).....		3	2	1		1			2	1
Myelitis, transverse (Class XVII, Inter. 63).....	1	5	5		2	2	1		3	3
Myiasis (Class XXII, Inter. 145C).....		1		1						
Myocarditis, acute (Class II, Inter. 78).....	3	122	66	83	35	2	2		53	16
Myocarditis, chronic (Class II, Inter. 79C).....	8	334	261	95	74	2	156		202	74
Myopia (Class VI, Inter. 75C).....	8	342	98	103	95		168		62	20
Myositis, acute (Class XVI, Inter. 149).....	2	337	128	314	65				71	17
Myositis, chronic (Class XVI, Inter. 149).....	1	75	70	31	22		18		51	24
Myositis, progressive, ossifying (Class XVI, Inter. 149).....		2					1		1	
Myositis, traumatic, ossifying (Class XVI, Inter. 149).....		7	4	1	1		3		4	2
Myringitis, acute (Class V, Inter. 76).....	2	32	9	32	1		1		9	
Myringitis, chronic (Class V, Inter. 76).....		1			1					
Myxoma (Class XXIII, Inter. 48).....		1		1						
Nausea marina (Class XXI, Inter. 181A).....	15	509	319	423	46		83	1	241	49
Necrosis (Class XVI, Inter. 146).....	4	25	29	25	7		2		20	4
Nephralgia (Class VII, Inter. 122).....	1	15	21	14	5		2		15	1
Nephritis, acute (Class VII, Inter. 119).....	13	314	249	179	130	20	8		225	14
Nephritis, chronic interstitial (Class VII, Inter. 120).....	7	145	131	65	43	11	45		106	13
Nephritis, chronic parenchymatous (Class VII, Inter. 120).....	11	125	104	46	16	7	70		82	19
Nephritis, disseminated suppurative (Class VII, Inter. 122).....		1		1						
Nephrolithiasis (Class VII, Inter. 123).....	9	131	126	97	43		11		101	14
Nephroptosis (Class VII, Inter. 122).....		9	12	4	6		1		8	2
Nervous dyspepsia (Class III, Inter. 103).....		34	23	29	11		1		14	2
Neuralgia (Class XVII, Inter. 73B).....	4	438	117	405	40		7		85	22
Neurasthenia (Class XVII, Inter. 74).....	31	940	832	541	247		368		586	121
Neuritis (Class XVII, Inter. 73B).....	18	436	308	314	99		54		244	51
Neuritis, multiple (Class XVII, Inter. 73B).....	1	18	23	16	4		5		16	1
Neuritis, optic (Class VI, Inter. 75C).....		26	22	15	9		6		17	1
Neuroma (Class XXIII, Inter. 46).....		6	4	5	1		1		3	
Neuroretinitis (Class VI, Inter. 75C).....	1	23	24	11	10		5		17	8
Neurosis, intestinal (Class III, Inter. 110B).....	3	28	18	23	9		5		11	1
Neurosis, occupational (Class XVII, Inter. 74).....	1	19	6	13	3		3		6	1

## 1.—Detailed statement of diseases and injuries for the calendar year 1918—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>EASES—Continued.</b>											
of bladder (Class VII, 124)	10	154	86	55	24		97		56	15	4,728
of larynx (Class XVIII, 87)	1	2		2			1				74
traumatic (Class XVII, 74)	6	52	47	23	13		21		46	2	1,806
var (Class XVII, Inter. 6)		1	26	26					1		904
indness (Class VI, Inter. 4)		4	2	2			2		2		108
ase (Class XXI, Inter. 208)	2,332	1,236	2,151	560				2	666	67	22,225
(Class XXI, Inter. 68)		7	4	5	2				4		49
us (Class VI, Inter. 75C)		4	6	1	2		2		4	1	73
Class XXI, Inter. 55)		6	7	4	2		4		3		22
ion, acute intestinal (II, Inter. 109)	1	33	16	12	7	12			15	4	631
ion, chronic, intestinal (II, Inter. 109)	1	14	30	16	2		1		19	7	1,065
na (Class XXIII, Inter. 3)		47	7	48	1				6		23
(Class XIX, Inter. 145C)	1	17	24	6	8		10		17		441
of vitreous humor (Class er. 75C)		1		1							721
noplegia (Class VI, 75C)		1									17
acute (nonvenereal) VII, Inter. 127)	8	836	330	738	111		1		298	26	9,903
chronic (nonvenereal) VII, Inter. 127)	3	69	62	65	14		9		38	8	1,791
sore (Class XIII, Inter. 1)		1	2	1					2		164
on of cartilage, uncual-lass XVI, Inter. 149)		2	1				1		1	1	48
leormans (Class XVI, 46)		3	4	1	1		1		3	1	71
ropathy, hypertrophic, XXI, Inter. 6)		7	6	2	1		1		7	2	116
(Class XXIII, Inter. 46)	6	50	63	36	14		8		50	11	2,087
elitis, acute (Class XVI, 46)	6	71	38	43	17	1	3		37	13	3,586
elitis, chronic (Class Inter. 146)	2	85	100	39	29		26		69	24	5,957
erna (Class V, Inter. 76)	2	289	125	283	29		2		99	3	3,279
terna, acute (Class V, 76)	2	20	12	17	2				12	3	441
erna, chronic (Class V, 76)	1	60	44	31	5		16		42	11	1,821
edia, acute (Class V, 76)	96	2,168	1,206	1,046	322	1	2		1,104	94	50,359
edia, chronic (Class V, 76)	65	1,587	1,400	926	195		645	1	1,085	200	48,913
is (Class XXII, Inter. 5)		5	4	5	2				2		71
Class XVIII, Inter. 86)		6	4	4	1				4	1	288
eningitis, cerebral (Class Inter. 61)		7	11	2	6		3		6	1	211
eningitis, spinal (Class Inter. 61)		2	2				1		2	1	38
on, cardiac (Class II, 5)	1	66	43	47	17		5		37	4	1,464
itis, acute (Class III, 118)		2	1	2					1		189
itis, chronic (Class III, 118)	1	2		3							106
halmitis (Class VI, 75C)		8	1		3		3		2	1	465
na (Class XXIII, Inter. 2)	42	37	38	14					27	2	1,044
ci fever (Class X, Inter. 8)			8								29
acute ascending (Class Inter. 63)		4	1		2	2			1		72
s, agitans (Class XVII, 63)		2	1				1		1	1	20
s, Brown-Sequard's XVII, Inter. 63)		2	2		2		1		1		188
s of nerve (Class XVII, 66)	10	142	122	83	30		35		97	29	6,667
s of ocular muscle (Class Inter. 75C)	1	32	30	13	12		10		24	4	1,923



TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1911

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	
<b>DISEASES—Continued.</b>										
Paralysis of vocal cords (Class XVIII, Inter. 74).....	1	13	11	3	6		5		10	
Paralysis, muscle, ischemic (Class XVI, Inter. 149).....		6	2	2			2		2	
Paramyoclonus multiplex (Class XVII, Inter. 74).....		1			1					
Paranoia (Class XV, Inter. 68).....		11	26	2	11		1		22	
Paranoiac state (Class XV, Inter. 68).....	5	24	41	5	15		13		31	
Paraphimosis (Class VII, Inter. 127).....	4	112	41	96	16				35	
Paraplegia, ataxic (Class XVII, Inter. 66).....		4	3	1	2				3	
Paratyphoid fever (Class IX, Inter. 1).....	2	18	12	17	4				10	
Pellucolosis (Class XXII, Inter. 145C).....	1	78	23	76	10				15	
Pellagra (Class XXI, Inter. 26).....		1	1	1					1	
Pemphigus (Class XIX, Inter. 145C).....		17	4	12	4				5	
Perforated nasal septum (Class XVIII, Inter. 86).....	2	15	11	13	4		2		9	
Pericarditis (Class II, Inter. 77).....	3	58	44	17	25	4	10		40	
Pericardium, adherent (Class II, Inter. 77).....		6	5		1		5		5	
Perichondritis of auricle (Class V, Inter. 76).....		6	3	5	1				3	
Perichondritis of larynx (Class XVIII, Inter. 87).....		1	2	1	1				1	
Periophthalmitis (Class III, Inter. 115).....	1	1		1	1					
Periostitis, acute (Class XVI, Inter. 146).....	4	145	86	120	35		1		66	
Periostitis, chronic (Class XVI, Inter. 146).....	1	73	74	49	29		9		51	
Perisplenitis (Class IV, Inter. 116).....		1	1	1					1	
Peritonitis, acute, general (Class III, Inter. 117).....		20	6	4	4	9			6	
Peritonitis, acute, local (Class III, Inter. 117).....	1	4		2	1	1			1	
Peritonitis, chronic, general (Class III, Inter. 117).....		1	1		1				1	
Peritonitis, chronic, local (Class III, Inter. 117).....	1	2	2	1	1				2	
Persistent thymus gland (Class IV, Inter. 81).....		1					1			
Perversion of appetite (Class III, Inter. 103).....		1		1						
Pes cavus (Class XVI, Inter. 149).....		25	20	10	7		10		16	
Pes planus (Class XVI, Inter. 149).....	74	1,980	1,406	931	160		1,015	2	1,091	
Phantom tumor (Class XXI, Inter. 189B).....		1		1						
Pharyngitis, acute (Class III, Inter. 100).....	20	1,894	179	1,849	73	1			130	
Pharyngitis, chronic (Class III, Inter. 100).....	1	19	24	26	5				10	
Phimosis (Class VII, Inter. 127).....	7	1,334	265	1,296	51				230	
Phlebitis (Class II, Inter. 83).....	4	143	85	95	15		26		69	
Pityriasis rosea (Class XIX, Inter. 145C).....		37	16	37	5				11	
Pityriasis simplex (Class XIX, Inter. 145C).....		3	1	3					1	
Pityriasis versicolor (Class XXII, Inter. 25B).....		3	1	4						
Pleurisy, acute, fibrinous (Class XVIII, Inter. 93).....	46	1,520	643	1,228	345	3	2		567	
Pleurisy, chronic, fibrinous (Class XVIII, Inter. 93).....	8	239	196	161	57		38		142	
Pleurisy, serofibrinous (Class XVIII, Inter. 93).....	16	482	380	320	174	3	12		296	
Pleurisy, suppurative (Class XVIII, Inter. 93).....	50	823	407	334	264	41	45		340	
Pleuritic adhesions (Class XVIII, Inter. 93).....	6	60	43	41	14		18		27	
Pneumonia, broncho- (Class VIII, Inter. 91).....	62	7,591	2,313	4,168	3,351	156	1	2	1,729	
Pneumonia, interstitial (Class XVIII, Inter. 98).....	1	10	9	5	5		2		8	
Pneumonia, lobar (Class VIII, Inter. 92).....	248	4,990	2,862	2,822	1,906	601	601	5	2,548	

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1918—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>DISEASES—Continued.</b>											
Stricture of intestines (Class III, Inter. 109).....		2					2				76
Stricture of rectum (Class III, Inter. 110B).....		3	2	2					2	1	111
Stricture of ureter (Class VII, Inter. 122).....	3	6	1	9					1		50
Stricture of urethra (Class VII, Inter. 125).....	3	169	162	142	41		9		126	16	3,853
Stranguloides, intestinal (Class XXII, Inter. 107).....		7	4	8	1				2		128
Stuttering (Class XVII, Inter. 74).....	1	8	1	1			8		1		77
Sodamina (Class XIX, Inter. 145C).....		5	2	5	1				1		31
Suppression of urine (Class VII, Inter. 124).....	1	8	6	8	2				5		39
Symblypharon (Class VI, Inter. 75C).....		2			1		1		2		295
Synechia (Class VI, Inter. 75C).....	1	8	7	4			4		7	1	194
Syphilis (Class XII, Inter. 37).....	297	5,961	5,862	6,599	934	14	247	11	3,807	508	162,154
Syngomyelia (Class XVII, Inter. 63).....		3	3		1		1		4		272
Tachycardia (Class II, Inter. 85).....	4	242	169	177	56		39		115	28	5,178
Talipes (Class XVI, Inter. 149).....	2	13	16	6	2		11		10	2	528
Tamiasis (Class XXII, Inter. 107).....	2	108	80	111	11				42	1	1,230
Tenosynovitis (Class XVII, Inter. 149).....	2	187	56	172	16		5		40	13	2,399
Teratoma (Class XXIII, Inter. 46).....	1	6	1	7					1		201
Tetanus (Class XIII, Inter. 24).....		2				2					2
Tetany (Class XXI, Inter. 74).....		3	1	3					1		38
Thrombosis (Class II, Inter. 82).....	6	23	21	16	3	2	4		20	5	714
Thyroiditis, acute (Class IV, Inter. 89).....		18	12	13	6				10	1	361
Thyroiditis, chronic (Class IV, Inter. 89).....		17	21	8	4		6		14	6	1,068
Tic, convulsive (Class XVII, Inter. 74).....		13	15	5	5		7		11		431
Tic, coordinated (Class XVII, Inter. 74).....		2	4	1	2		1		2		71
Tic, psychical (Class XVII, Inter. 74).....		2	5	1	3		2		1		176
Tonsillitis acute follicular (Class XVIII, Inter. 100).....	462	23,822	4,003	23,262	1,242	3		5	3,380	395	138,245
Tonsillitis, chronic (Class XVIII, Inter. 100).....	18	1,819	1,066	1,690	189		2		936	115	27,673
Torsion of omentum (Class III, Inter. 118).....		1		1							4
Torsion of spermatic cord, non-traumatic (Class VII, Inter. 127).....		8	6	7	2				4	1	218
Tracheitis (Class XVIII, Inter. 89).....		28	1	29							147
Trachoma (Class VI, Inter. 75B).....	1	58	58	18	17		19		57	6	1,771
Trench fever (Class X, Inter. 19).....		2			1				1		26
Trichiasis (Class VI, Inter. 75C).....		3		3							33
Trichiniasis (Class XXII, Inter. 107).....		7	4	7	1				3		222
Trichophytosis (Class XXII, Inter. 145A).....	4	501	104	493	17		1		83	15	5,470
Trichostrongylus instabilis (Class XXII, Inter. 107).....			1	1							11
Trichuriasis (Class XXII, Inter. 107).....		8	1	8					1		112
Trichuris trichiura (Class XXII, Inter. 107).....		8	1	7	1				1		44
Tuberculosis, abdominal (Class Inter. 31).....	4	14	31	3	9	5	6		21	5	1,731
Tuberculosis, acute broncho-pneumonic (Class XI, Inter. 29).....	6	38	39	1	26	4	6		41	5	2,705
Tuberculosis, acute general (Class XI, Inter. 29).....	2	16	14	1	8	6	1		15	1	907
Tuberculosis, acute pneumonic (Class XI, Inter. 29).....	7	112	125	2	59	6	21		122	34	6,995
Tuberculosis, acute pulmonary, military (Class XI, Inter. 29).....	4	109	105	4	60	9	16		111	18	4,986
Tuberculosis chronic pulmonary (Class XI, Inter. 28).....	269	1,949	2,591	133	517	84	1,001		2,249	735	199,146
Tuberculosis of bronchus (Class XI, Inter. 28).....		4	9	1	2		1		7	2	259
Tuberculosis of joint (Class XI, Inter. 33).....	7	33	34	6	10	1	24		28	2	8,215

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1918—Co

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	I.
<b>DISEASES—Continued.</b>											
Rhinitis, hypertrophic (Class XVIII, Inter. 88).....	1	109	93	91	29		1		78	4	
Rupture of heart, spontaneous (Class II, Inter. 79C).....		1				1					
Rupture of spleen, spontaneous (Class IV, Inter. 118).....		1	1						1	1	
Sarcoma (Class XXIII, Inter. 39-45).....	1	18	18	8	3	3	7	1	12	3	
Scabies (Class XXII, Inter. 145B).....	44	1,820	870	1,793	108			2	705	126	
Scarlet fever (Class VIII, Inter. 7).....	106	1,214	984	1,108	218	14		1	926	37	
Schistosomiasis, intestinal (Class XXII, Inter. 107).....		1		1							
Schistosomiasis, urinary (Class XXII, Inter. 122).....		1	1	1					1		
Scleritis (Class VI, Inter. 75C).....		9	8	7	2		2		6		
Scleroderma (Class XIX, Inter. 145C).....	1			1							
Sclerosis, amyotrophic lateral (Class XVII, Inter. 63).....	1	2	1	1			2		1		
Sclerosis, disseminated (Class XVII, Inter. 63).....	1	7	13	1	2				10		
Sclerosis, lateral (Class XVII, Inter. 63).....		4	1	1	1		1		1	1	
Scurvy (Class XXI, Inter. 49).....	2	2	6	4	2						
Seborrhea (Class XIX, Inter. 145C).....		4	1	3					2		
Seminal emissions (Class VII, Inter. 127).....		2	2	2	1				1		
Senility (Class XXI, Inter. 154B).....	3	14	8	4	3		9	1	8		
Septicemia (Class XIII, Inter. 20).....	1	79	15	32	19	26			14	3	
Shock (Class XI, Inter. 189A).....	1	19	8	14	3	2			8		
Sinus (Class XXI, Inter. 145C).....	1	55	47	51	12		2		34	10	
Sinusitis, ethmoidal (Class XVIII, Inter. 146).....	4	110	74	63	26		23		64	12	
Sinusitis, frontal (Class XVIII, Inter. 146).....	15	586	375	545	59	2	25	1	307	37	
Sinusitis, maxillary (Class XVIII, Inter. 146).....	11	176	122	159	19		8		163	20	
Sinusitis, sphenoidal (Class XVIII, Inter. 146).....		5	5	3		1			5	1	
Smallpox (Class VIII, Inter. 5).....	3	51	25	46	11	3			18	1	
Somnambulism (Class XVII, Inter. 74).....		17	10	5	1		11		9	1	
Spasm habit (Class XVII, Inter. 74).....		3	1	1			3				
Spasm of esophagus (Class III, Inter. 101).....		1		1							
Spasm of rectum (Class III, Inter. 110B).....		2	1	2					1		
Spermatocele (Class VII, Inter. 127).....		2	1	2					1		
Spermatorrhea (Class VII, Inter. 127).....		3	4	2	2				3		
Splanchnoptosis (Class III, Inter. 110B).....	11	10	8	3			3		5	2	
Splenitis, acute (Class IV, Inter. 116).....		1	2	2					1		
Splenitis, chronic, interstitial (Class IV, Inter. 116).....	3	3	3				1		3	2	
Sporotrichosis (Class XXII, Inter. 25B).....	1			1							
Spur on nasal septum (Class XVIII, Inter. 86).....		31	24	27	3				24	1	
Stammering (Class XVII, Inter. 74).....		29	13	8	2		21		11		
Staphyloma of cornea (Class VI, Inter. 75C).....		2	3	1	2				2		
Status lymphaticus (Class XIV, Inter. 84).....		2				1					
Stenosis of nasal duct (Class VI, Inter. 75C).....	1	4	3	4			1		3		
Stenosis of punctum lacrimale (Class VI, Inter. 75C).....		1	1	1					1		
Stenosis of pylorus (Class III, Inter. 103).....	1	6	3	1	3		2		3	1	
Stomatitis (Class III, Inter. 99B).....		79	45	73	19				32		
Stomatitis gangrenous (Class III, Inter. 142).....		5	2	5	1				1		
Stricture of esophagus (Class III, Inter. 101).....				3			2		1		

1.—Detailed statement of diseases and injuries for the calendar year 1918—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>ASES—Continued.</b>											
of intestines (Class III, 99)		2					2				76
of rectum (Class III, 0B)		3	2	2					2	1	111
of ureter (Class VII, 2)	3	6	1	9					1		50
of urethra (Class VII, 5)	3	109	162	142	41		9		126	16	3,853
ides, intestinal (Class Inter. 107)		7	4	8	1				2		128
(Class XVII, Inter. 74)	1	8	1	1			8		1		77
(Class XIX, Inter. 4)		5	2	5	1				1		31
on of urine (Class VII, 4)	1	8	6	8	2				5		39
aron (Class VI, Inter. 75C)		2	2		1		1		2		295
(Class VI, Inter. 75C)	1	8	7	4			4		7	1	194
Class XII, Inter. 37)	297	5,961	5,862	6,509	934	14	247	11	3,807	508	162,154
ella (Class XVII, Inter. 85)		3	3		1		1		4		272
ia (Class II, Inter. 85)	4	242	169	177	56		39		115	28	5,178
Class XVI, Inter. 149)	2	13	16	6	2		11		10	2	528
Class XXII, Inter. 107)	2	103	60	111	11				42	1	1,230
ritis (Class XVII, Inter. 46)	2	187	56	172	15		5		40	13	2,399
(Class XXIII, Inter. 24)	1	6	1	7					1		201
Class XXI, Inter. 74)		2	3	1	3				1		2
is (Class II, Inter. 82)	6	23	21	16	3	2	4		20	5	38
is, acute (Class IV, Inter. 18)		18	12	13	6				10	1	361
is, chronic (Class IV, Inter. 17)		17	21	8	4		6		14	6	1,068
ulsive (Class XVII, Inter. 13)		13	15	5	5		7		11		431
inated (Class XVII, Inter. 2)		2	4	1	2		1		2		71
ical (Class XVII, Inter. 2)		2	5	1	3		2		1		176
acute follicular (Class Inter. 100)	462	23,822	4,003	23,262	1,242	3		5	3,380	395	138,245
chronic (Class XVIII, Inter. 100)	18	1,819	1,096	1,600	189		2		936	115	27,673
omentum (Class III, 18)		1		1							4
spermatic cord, non-ic (Class VII, Inter. 8)		8	6	7	2				4	1	218
(Class XVIII, Inter. 28)		28	1	29							147
(Class VI, Inter. 75B)	1	58	58	18	17		19		57	6	1,771
er (Class X, Inter. 19)		2			1				1		26
(Class VI, Inter. 75C)		3		3							33
is, (Class XXII, Inter. 7)		7	4	7	1				3		222
ytosis (Class XXII, 45A)	4	501	104	493	17		1		83	15	5,470
onylus instabilis (Class Inter. 107)			1	1							11
is (Class XXII, Inter. 8)		8	1	8					1		112
trichiura (Class XXII, 07)		8	1	7	1				1		44
osis, abdominal (Class 1)	4	14	31	3	9	5	6		21	5	1,731
osis, acute broncho-omic (Class XI, Inter. 29)	6	38	39	1	26	4	6		41	5	2,705
osis, acute general (Class er. 29)	2	16	14	1	8	6	1		15	1	907
osis, acute pneumonic (Class XI, Inter. 29)	7	112	125	2	59	6	21		122	34	6,995
osis, acute pulmonary, (Class XI, Inter. 29)	4	109	105	4	60	9	16		111	18	4,986
osis chronic pulmonary (Class XI, Inter. 28)	269	1,949	2,591	133	517	84	1,091		2,249	735	199,146
osis of bronchus (Class Inter. 28)		4	9	1	2		1		7	2	259
osis of joint (Class XI, 3)	7	33	34	6	10	1	24		28	2	8,215



TABLE I.—Detailed statement of diseases and injuries for the calendar year 1918—C

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.
<b>DISEASES—Continued.</b>										
Tuberculosis of larynx (Class XI, Inter. 28)	1	6	6		4				7	2
Tuberculosis of pleura (Class XI, Inter. 28)		10	9		4		2		11	2
Tuberculosis of spinal column (Class XI, Inter. 32)	1	25	23	4	6		15		17	
Tuberculosis of trachea (Class XI, Inter. 28)		1	1		1				1	
Tuberculosis, unqualified (Class XI, Inter. 34)	4	93	82	27	33	6	14	2	81	10
Tuberculous meningitis (Class XI, Inter. 30)		10	5		2	9			3	
Typhoid fever (Class IX, Inter. 1)	6	65	52	46	22	9			34	1
Typhus fever (Class X, Inter. 2)		1		1						
Ulcer of the bladder (Class VII, Inter. 124)		2	1	21					1	
Ulcer of duodenum (Class III, Inter. 105A)	12	115	139	65	52	4	30		99	2
Ulcer of epiglottis (Class XVIII, Inter. 87)		2		2						
Ulcer of eye and adnexa (Class VI, Inter. 75C)	5	163	96	140	26		4		76	
Ulcer of intestines (Class III, Inter. 105B)		7	4	3	2	1	1		3	
Ulcer of mouth (Class III, Inter. 99B)	2	29	15	25	9				12	
Ulcer of nasal passage (Class XVIII, Inter. 86)	1	9	5	8	1	1			4	
Ulcer of rectum (Class III, Inter. 11B)	1	8	7	6	2		1		7	
Ulcer of skin (Class XIX, Inter. 145C)	24	319	186	304	35		6		145	4
Ulcer of stomach (Class III, Inter. 102)	21	244	284	125	111	6	57	1	205	4
Ulcer of trachea (Class XVIII, Inter. 98)			1							
Ulceromembranous angina (Class III, Inter. 100)	5	495	227	451	86	1		2	155	3
Uncinariasis (Class XXII, Inter. 106)	2	877	463	975	64		1		291	1
Undulant fever (Class XIII, Inter. 3A)		1	2	2					1	
Union of fracture, faulty (Class XVI, Inter. 146)	5	123	177	51	16		150		71	1
Ureteral colic (Class VII, Inter. 123)		25	16	22	8				11	
Ureteritis (Class VII, Inter. 122)		2	1	1					1	
Urethritis, acute (nonven.) (Class VII, Inter. 125)		84	41	61	28				30	
Urethritis, chronic (nonven.) (Class VII, Inter. 125)		30	16	26	7				11	
Urticaria (Class XIX, Inter. 145C)	4	295	61	286	23		3		44	
Vaccinia (Class XIII, Inter. 19)	15	1,012	116	1,019	33				87	
Valvular disease, chronic cardiac (Class II, Inter. 79A)	35	1,137	545	241	124	14	802		427	10
Varicocle (Class VII, Inter. 83)	48	1,782	1,452	1,626	150		32	1	1,339	13
Varix (Class, II, Inter. 83)	18	372	393	290	46		61	1	332	6
Verruga peruviana (Class XIII, Inter. 55)		1		1						
Vertigo (Class XXI, Inter. 189A)		65	36	47	23		8		21	
Vomiting, recurrent (Class III, Inter. 193)		12	9	9	3				8	
Wart (Class XIX, Inter. 145C)	2	78	23	76	5		1		19	
Whooping cough (Class VII, Inter. 8)	2	25	7	22	2				9	
Xeroderma, pigmentosa (Class XIX, Inter. 145)		1		1						
Zoster (Class XVII, Inter. 145C)	1	45	16	41	5				15	
<b>FEMALE DISEASES.</b>										
Abortion (Class XXIV, Inter. 134B)		3	3	3	1				2	
Abscess of vagina (Class XXIV, Inter. 132)	1	2			1				1	
Abscess of vulva (Class XXIV, Inter. 132)	1			1						
Amenorrhea (Class XXIV, Inter. 130B)		2		2						



## 1.—Detailed statement of diseases and injuries for the calendar year 1918—Contd.

Diagnoses.	Rem.	A.	R.A.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>LE DISEASES—Con.</b>											
ment of uterus, unequal-											
Class. XXIV, Inter. 134B).		5	2	1					2	2	131
rrhea (Class. XXIV,											
130B).	402	8		402			1			7	938
ritis, acute (Class.											
Inter. 130A).	5	1		5					1		76
ritis, chronic (Class.											
Inter. 130A).	2	1					1		1	1	28
, extrauterine (Class.											
Inter. 134B).	2			1					1		37
agia (Class. XXIV,											
128).	14	2		16							113
acute (Class. XXIV,											
130A).	1			1							6
is, acute (Class. XXIV,											
132).	6			6							63
(Class. XXIV, Inter.											
132).	17			4						5	223
is, acute (Class. XXIV,											
132).	1	3	1	2	1					2	105
, acute (Class. XXIV,											
132).	1			1							13
, chronic (Class. XXIV,											
132).	1			1							2
<b>INJURIES.</b>											
abdomen, "G" (Class											
Inter. 186).	2			2							18
abdomen, "L" (Class											
Inter. 186).	2			2							3
ankle, "G" (Class											
Inter. 186).	2			2							10
ankle, "J" (Class											
Inter. 186).	1			1							3
ankle, "L" (Class											
Inter. 186).	12			10	1				1		57
arm, "G" (Class											
Inter. 186).	1				1						3
arm, "L" (Class											
Inter. 186).	1										7
back, "G" (Class							1				
Inter. 186).	1	2		2						1	141
back, "I" (Class											
Inter. 186).	1			1							9
back, "K" (Class											
Inter. 186).		1		1							28
back, "L" (Class											
Inter. 186).	2	1		2					1		15
ear, "L" (Class XXV,											
184).		1		1							68
elbow, "G" (Class											
Inter. 186).	1			1							5
elbow, "J" (Class											
Inter. 186).	1			1							2
elbow, "L" (Class											
Inter. 186).	1			1							3
eye, "P" (Class XXV,											
186).		1		1							3
eye, "G" (Class XXV,											
186).	2	1		2					1		18
eye, "K" (Class XXV,											
186).	1	1		1					1		18
eye, "L" (Class XXV,											
186).	26	7		23	1				8	1	272
face, "P" (Class											
Inter. 186).	2			2							
face, "G" (Class											
Inter. 186).	6			6							25
face, "H" (Class											
Inter. 186).	3			1					2		2
face, "HR" (Class											
Inter. 186).	1			1							3
face, "J" (Class											
Inter. 186).	1			1							47
face, "L" (Class											
Inter. 186).	6	3		8	1						46
finger, "H" (Class											
Inter. 186).	1			1							12
finger, "I" (Class											
Inter. 186).	4			4							75

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1918—

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Co.
<b>INJURIES—Continued.</b>										
Abrasion, finger, "J" (Class XXV, Inter. 186)		1							1	
Abrasion, finger, "K" (Class XXV, Inter. 186)		2	2	4						
Abrasion, finger, "L" (Class XXV, Inter. 186)		16	1	15					1	
Abrasion, foot, "G" (Class XXV, Inter. 186)		5		5						
Abrasion, foot, "H" (Class XXV, Inter. 186)		1		1						
Abrasion, foot, "I" (Class XXV, Inter. 186)		3	1	2	1				1	
Abrasion, foot, "J" (Class XXV, Inter. 186)		9		9						
Abrasion, foot, "K" (Class XXV, Inter. 186)		3	8	5	1				3	
Abrasion, foot, "L" (Class XXV, Inter. 186)	1	179	80	178	8				66	
Abrasion, forearm, "G" (Class XXV, Inter. 186)		1		1						
Abrasion, forearm, "L" (Class XXV, Inter. 186)		2		1					1	
Abrasion, hand, "F" (Class XXV, Inter. 186)		1		1						
Abrasion, hand, "G" (Class XXV, Inter. 186)		6	1	6					1	
Abrasion, hand, "H" (Class XXV, Inter. 186)		1		1						
Abrasion, hand, "I" (Class XXV, Inter. 186)		2		2						
Abrasion, hand, "J" (Class XXV, Inter. 186)		3	1	3					1	
Abrasion, hand, "K" (Class XXV, Inter. 186)		1		1						
Abrasion, hand, "L" (Class XXV, Inter. 186)		20	4	20					4	
Abrasion, head, "A" (Class XXV, Inter. 186)		1	1	1					1	
Abrasion, head, "G" (Class XXV, Inter. 186)		3	1	4						
Abrasion, head, "K" (Class XXV, Inter. 186)		1		1						
Abrasion, head, "L" (Class XXV, Inter. 186)		5	2	3	1				2	
Abrasion, hip, "G" (Class XXV, Inter. 186)		1		1						
Abrasion, hip, "L" (Class XXV, Inter. 186)		3	4	5	1				1	
Abrasion, knee, "G" (Class XXV, Inter. 186)		32	7	33	1				5	
Abrasion, knee, "H" (Class XXV, Inter. 186)		2		2						
Abrasion, knee, "I" (Class XXV, Inter. 186)		1		1						
Abrasion, knee, "J" (Class XXV, Inter. 186)		8	2	8	1				1	
Abrasion, knee, "K" (Class XXV, Inter. 186)			1	1						
Abrasion, knee, "L" (Class XXV, Inter. 186)		14	2	14	1				1	
Abrasion, leg, "G" (Class XXV, Inter. 186)		35	4	36	2				1	
Abrasion, leg, "GR" (Class XXV, Inter. 186)		1		1						
Abrasion, leg, "H" (Class XXV, Inter. 186)		2		2						
Abrasion, leg, "J" (Class XXV, Inter. 186)		4	1	2	1				2	
Abrasion, leg, "K" (Class XXV, Inter. 186)		1		1						
Abrasion, leg, "L" (Class XXV, Inter. 186)		32	7	33	2				3	
Abrasion, maxilla, "L" (Class XXV, Inter. 186)			1							
Abrasion, mouth, "L" (Class XXV, Inter. 186)		2		2						
Abrasion, multiple, "F" (Class XXV, Inter. 186)		1		1						
Abrasion, multiple, "G" (Class XXV, Inter. 186)		6		4	1				1	

1.—Detailed statement of diseases and injuries for the calendar year 1918—Contd.

Diagnoses.	Rem.	A.	RA.	Di	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>WOUNDS</b> —Continued.											
on, multiple, "L" (Class Inter. 186)		8	5	11	1				1		56
on, neck, "K" (Class Inter. 186)			2	2							105
on, nose, "GR" (Class Inter. 186)		1		1							1
on, nose, "K" (Class Inter. 186)			1	1							3
on, nose, "L" (Class Inter. 186)		1		1							1
on, penis, "G" (Class Inter. 186)		1		1							
on, penis, "J" (Class Inter. 186)		1		1							
on, penis, "L" (Class Inter. 186)		4	4	5	2				1		39
on, scrotum, "J" (Class Inter. 186)		2		2							7
on, scrotum, "L" (Class Inter. 186)		1		1							3
on, shoulder, "G" (Class Inter. 186)		2		2							5
on, shoulder, "J" (Class Inter. 186)		1		1							1
on, shoulder, "K" (Class Inter. 186)		1		1							9
on, shoulder, "L" (Class Inter. 186)		3	1	2					2		4
on, thigh, "G" (Class Inter. 186)		3	1	3					1		25
on, thigh, "H" (Class Inter. 186)		1							1		7
on, thigh, "I" (Class Inter. 186)		2	1		2				1		18
on, thigh, "J" (Class Inter. 186)		1		1							2
on, thigh, "K" (Class Inter. 186)			2	2							34
on, thigh, "L" (Class Inter. 186)		1	1	1					1		3
on, thorax, "G" (Class Inter. 186)		2	1	1					2		35
on, thorax, "H" (Class Inter. 186)		1		1							4
on, toe, "H" (Class Inter. 186)		1		1							5
on, toe, "I" (Class XXV, Inter. 186)		1		1							25
on, toe, "J" (Class XXV, Inter. 186)	1	1		2							8
on, toe, "L" (Class XXV, Inter. 186)		25	5	20					1		315
on, unqualified, "G" (Class XXV, Inter. 186)		1		1							8
on, unqualified, "H" (Class XXV, Inter. 186)		1		1							3
on, unqualified, "L" (Class XXV, Inter. 186)		1	2	1	1				1		53
on, upper extremity, (Class XXV, Inter. 186)		1		1							7
on, upper extremity, (Class XXV, Inter. 186)		4		1					3		5
on, wrist, "L" (Class Inter. 186)		2	1	2					1		22
on, arm, "HR" (Class Inter. 186)		1								1	189
on, ear, "G" (Class XXV, Inter. 186)		1								1	17
on, eyeball, "L" (Class Inter. 186)		1							1		88
on, finger, "E" (Class Inter. 186)		2	3	3					2		80
on, finger, "F" (Class Inter. 186)		1	1	1						1	80
on, finger, "H" (Class Inter. 186)	1	10	7	15			2		6	1	543
on, finger, "I" (Class Inter. 186)		14	4	12			1		5		483
on, finger, "K" (Class Inter. 186)			1	1							52

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1918—C

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.
<b>INJURIES—Continued.</b>										
Avulsion, finger, "L" (Class XXV, Inter. 186)		13	4	8			3		4	2
Avulsion, finger nail, "L" (Class XXV, Inter. 186)		1		1						
Avulsion, foot, "G" (Class XXV, Inter. 186)		1		1						
Avulsion, foot, "L" (Class XXV, Inter. 186)			1							1
Avulsion, forearm, "L" (Class XXV, Inter. 186)	1								1	
Avulsion, hand, "H" (Class XXV, Inter. 186)		1	1	2						
Avulsion, leg, "HR" (Class XXV, Inter. 186)		1	1							2
Avulsion, leg, "L" (Class XXV, Inter. 186)			1						1	
Avulsion, nasal septum, "J" (Class XXV, Inter. 186)		1		1						
Avulsion, teeth, "L" (Class XXV, Inter. 186)		2	1	2					1	
Avulsion, thigh, "L" (Class XXV, Inter. 186)			1						1	
Avulsion, tibial tubercle, "G" (Class XXV, Inter. 186)		2	3	1	1		1		2	
Avulsion, toe, "H" (Class XXV, Inter. 186)		3	5	3					3	2
Avulsion, toe, "I" (Class XXV, Inter. 186)		2	1	2						1
Avulsion, toe, "L" (Class XXV, Inter. 186)	1	1		1					1	
Avulsion, unqualified, "H" (Class XXV, Inter. 186)	1		1	1					1	
Blood donor, "L" (Class XXV, Inter. 189B)		15	2	16					1	
Burn, abdominal, "C" (Class XXV, Inter. 167)		2		2						
Burn, abdominal, "F" (Class XXV, Inter. 167)		2	2	2					2	
Burn, abdominal, "K" (Class XXV, Inter. 167)		1		1						
Burn, abdominal, "L" (Class XXV, Inter. 167)		29	3	29					2	1
Burn, ankle, "C" (Class XXV, Inter. 167)		1		1						
Burn, ankle, "E" (Class XXV, Inter. 167)		2		2						
Burn, ankle, "F" (Class XXV, Inter. 167)	1	2	2	5						
Burn, ankle, "L" (Class XXV, Inter. 167)		54	8	55	1				5	1
Burn, arm, "C" (Class XXV, Inter. 167)		5	1	5	1					
Burn, arm, "F" (Class XXV, Inter. 167)		2	1	1					2	
Burn, arm, "L" (Class XXV, Inter. 167)	1	70	9	72	2				5	1
Burn, back, "C" (Class XXV, Inter. 167)		1							1	
Burn, back, "E" (Class XXV, Inter. 167)		1		1						
Burn, back, "F" (Class XXV, Inter. 167)		6	3	7					1	1
Burn, back, "L" (Class XXV, Inter. 167)	1	27	4	27	1				4	
Burn, elbow, "C" (Class XXV, Inter. 167)		1		1						
Burn, elbow, "L" (Class XXV, Inter. 167)	1	3		4						
Burn, eye, "C" (Class XXV, Inter. 167)		1	3	2	1		1			
Burn, eye, "E" (Class XXV, Inter. 167)		2	2	3					1	
Burn, eye, "F" (Class XXV, Inter. 167)		16	1	17						
Burn, eye, "K" (Class XXV, Inter. 167)		1							1	
Burn, eye, "L" (Class XXV, Inter. 167)	1	88	36	78	9		1		34	3
Burn, face, "C" (Class XXV, Inter. 167)		6	1	5					2	

## 1.—Detailed statement of diseases and injuries for the calendar year 1918.—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
face, "CR" (Class XXV, 167)		1	1	2							9
face, "F" (Class XXV, 167)		29	12	28					11	2	358
face, "K" (Class XXV, 167)		3	1	2					2		47
face, "L" (Class XXV, 167)	1	67	7	66	2				6	1	729
finger, "C" (Class XXV, 167)		1		1							22
finger, "K" (Class XXV, 167)			1	1							2
finger, "L" (Class XXV, 167)		16	3	16					2	1	302
foot, "C" (Class XXV, 167)		8	1	7					2		99
foot, "F" (Class XXV, 167)		10	3	8	1				4		136
foot, "K" (Class XXV, 167)		2	2	3					1		114
foot, "L" (Class XXV, 167)	1	215	23	219	1		1		13	5	2,696
forearm, "C" (Class XXV, Inter. 167)		4	1	5							65
forearm, "F" (Class XXV, Inter. 167)		5	1	6							34
forearm, "HR" (Class XXV, Inter. 167)			1						1		5
forearm, "L" (Class XXV, Inter. 167)		56	10	56	1	1			6	2	1,025
hand, "C" (Class XXV, 167)		11	4	12			1		2		106
hand, "E" (Class XXV, 167)		1		1							1
hand, "F" (Class XXV, 167)		13	3	12					3	1	161
hand, "K" (Class XXV, 167)		2	1	3							17
hand, "L" (Class XXV, 167)	2	170	13	171			1		10	3	1,486
head, "F" (Class XXV, 167)		2	1	1	1				1		46
head, "K" (Class XXV, 167)		1							1		0
head, "L" (Class XXV, 167)		4	1	4	1						18
hip, "L" (Class XXV, 167)		2		2							11
hip, "LR" (Class XXV, 167)		1		1							3
knee, "F" (Class XXV, 167)		2		2							15
knee, "L" (Class XXV, 167)		6		5					1		41
leg, "C" (Class XXV, 167)		3		3							24
leg, "E" (Class XXV, 167)		1		1							12
leg, "F" (Class XXV, 167)		12	7	8	1	2			7	1	188
leg, "K" (Class XXV, 167)		2	2	2					2		122
leg, "L" (Class XXV, 167)	1	77	11	71	3		1		11	3	1,454
lower extremity, "C" (Class XXV, Inter. 167)		1	1	2							9
lower extremity, "F" (Class XXV, Inter. 167)		1	3	2	2						97
lower extremity, "L" (Class XXV, Inter. 167)		13	4	13					3	1	236
mouth, "L" (Class XXV, 167)		3		3							12
multiple, "C" (Class XXV, Inter. 167)		35	23	16	5	9			25	3	784
multiple, "CR" (Class XXV, Inter. 167)		5	1	1		3			2		5
multiple, "E" (Class XXV, Inter. 167)		1	1	1		1					49
multiple, "F" (Class XXV, Inter. 167)	4	126	99	80	3	27	3		83	32	3,830

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1918—Co

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.
<b>INJURIES—Continued.</b>										
Burn, multiple, "FR" (Class XXV, Inter. 167).....		7	3	2	1	4			3	
Burn, multiple, "GR" (Class XXV, Inter. 167).....		6	2	2		4			1	1
Burn, multiple, "H" (Class XXV, Inter. 167).....			1	1						
Burn, multiple, "HR" (Class XXV, Inter. 167).....			1	1						
Burn, multiple, "K" (Class XXV, Inter. 167).....		57	31	18	3	37			28	2
Burn, multiple, "L" (Class XXV, Inter. 167).....	7	118	40	109	6	5	1		40	4
Burn, multiple, "LR" (Class XXV, Inter. 167).....		2		2						
Burn, neck, "L" (Class XXV, Inter. 167).....		7	2	8					1	
Burn, penis, "C" (Class XXV, Inter. 167).....		1							1	
Burn, penis, "F" (Class XXV, Inter. 167).....		1	1	1					1	
Burn, penis, "K" (Class XXV, Inter. 167).....		1	1	1					1	
Burn, penis, "L" (Class XXV, Inter. 167).....	1	16	6	14	2				6	1
Burn, rectum, "L" (Class XXV, Inter. 167).....		1					1			
Burn, shoulder, "C" (Class XXV, Inter. 167).....			1	1						
Burn, shoulder, "F" (Class XXV, Inter. 167).....		1		1						
Burn, shoulder, "K" (Class XXV, Inter. 167).....		1	1						1	1
Burn, shoulder, "L" (Class XXV, Inter. 167).....	1	19		18	2					
Burn, testicle, "K" (Class XXV, Inter. 167).....		4	2	2					4	
Burn, testicle, "L" (Class XXV, Inter. 167).....		12		11						1
Burn, thigh, "C" (Class XXV, Inter. 167).....	1			1						
Burn, thigh, "F" (Class XXV, Inter. 167).....		2		2						
Burn, thigh, "K" (Class XXV, Inter. 167).....		3	3	3					3	
Burn, thigh, "L" (Class XXV, Inter. 167).....		28	6	26	2				6	
Burn, toe, "L" (Class XXV, Inter. 167).....		3		3						
Burn, thorax, "C" (Class XXV, Inter. 167).....		2							2	
Burn, thorax, "F" (Class XXV, Inter. 167).....		3	1	3						1
Burn, thorax, "L" (Class XXV, Inter. 167).....		32	3	29	1				3	2
Burn, unqualified, "C" (Class XXV, Inter. 167).....		10		9					1	
Burn, unqualified, "F" (Class XXV, Inter. 167).....		2							2	
Burn, unqualified, "L" (Class XXV, Inter. 167).....	1	19	2	18	1				3	
Burn, upper extremity, "C" (Class XXV, Inter. 167).....		8	1	7					2	
Burn, upper extremity, "F" (Class XXV, Inter. 167).....		8	2	9					1	
Burn, upper extremity, "FR" (Class XXV, Inter. 167).....			1	1						
Burn, upper extremity, "L" (Class XXV, Inter. 167).....		12	3	12					3	
Burn, wrist, "E" (Class XXV, Inter. 167).....		1		1						
Burn, wrist, "L" (Class XXV, Inter. 167).....		7		7						
Compression, abdomen, "G" (Class XXV, Inter. 186).....		1		1						
Compression, abdomen, "I" (Class XXV, Inter. 186).....		2		2						
Compression, arm, "E" (Class XXV, Inter. 186).....		1		1						
Compression, brain, "G" (Class XXV, Inter. 186).....		2	10	5	2				4	1



TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1918—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
pression, brain, "J" (Class V, Inter. 186)		2	2	1					2	1	39
pression, brain, "L" (Class V, Inter. 186)		2	5	4	1				2		77
pression, elbow, "I" (Class V, Inter. 186)		1		1							7
pression, foot, "H" (Class V, Inter. 186)		1		1							4
pression, foot, "I" (Class V, Inter. 186)		1		1							7
pression, foot, "L" (Class V, Inter. 186)		1		1							4
pression, forearm, "H" (Class XXV, Inter. 186)		1		1							6
pression, hand, "E" (Class V, Inter. 186)		1		1							4
pression, hand, "H" (Class V, Inter. 186)		2		1					1		4
pression, multiple, "L" (Class XXV, Inter. 186)		1		1							14
pression, multiple, "LU" (Class XXV, Inter. 186)		1		1							7
pression, nerve, "G" (Class V, Inter. 186)		1							1		14
pression, spine, "F" (Class V, Inter. 186)		1	2		1				1	1	62
pression, spine, "G" (Class V, Inter. 186)		2	2			1	1	1		1	42
pression, spine, "H" (Class V, Inter. 186)			1		1						0
pression, spine, "I" (Class V, Inter. 186)		1		1							4
pression, testicle, "L" (Class V, Inter. 186)		1		1							7
pression, thorax, "I" (Class V, Inter. 186)		2				2					0
pression, thorax, "J" (Class V, Inter. 186)		1		1							6
pression, throat, "I" (Class V, Inter. 186)		1				1					71
pression, toe, "I" (Class V, Inter. 186)		1		1							2
pression, unqualified, "L" (Class XXV, Inter. 186)	1	2		2					1		4
usion, abdomen, "E" (Class V, Inter. 186)			2	1	1						9
usion, abdomen, "F" (Class V, Inter. 186)		1		1							11
usion, abdomen, "G" (Class V, Inter. 186)	1	79	19	80	8				9	2	867
usion, abdomen, "GR" (Class XXV, Inter. 186)		3	2	4	1						54
usion, abdomen, "H" (Class XXV, Inter. 186)		2		2							3
usion, abdomen, "I" (Class V, Inter. 186)		10	9	11					5	3	465
usion, abdomen, "J" (Class V, Inter. 186)	1	13	3	13	1	1			2		94
usion, abdomen, "K" (Class V, Inter. 186)		1	3	3					1		93
usion, abdomen, "L" (Class V, Inter. 186)	1	76	28	75	11		1		16	2	711
usion, ankle, "E" (Class V, Inter. 186)			1	1							33
usion, ankle, "G" (Class V, Inter. 186)	1	47	13	49	3				8	1	969
usion, ankle, "H" (Class V, Inter. 186)	1	5		5	1						53
usion, ankle, "I" (Class V, Inter. 186)	2	39	7	40	2				6		486
usion, ankle, "J" (Class V, Inter. 186)		12	3	15							163
usion, ankle, "K" (Class V, Inter. 186)		4	2	1					4	1	23
usion, ankle, "L" (Class V, Inter. 186)		85	25	86	6				13	5	1,365
usion, arm, "F" (Class V, Inter. 186)		4		4							2
usion, arm, "G" (Class V, Inter. 186)		20	1	19					2		108

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1918—Continued.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	De.
<b>INJURIES—Continued.</b>											
Contusion, arm, "H" (Class XXV, Inter. 186)		5		5							
Contusion, arm, "I" (Class XXV, Inter. 186)		7		7							
Contusion, arm, "J" (Class XXV, Inter. 186)		6	3	8	1						
Contusion, arm, "K" (Class XXV, Inter. 186)		1								1	
Contusion, arm, "L" (Class XXV, Inter. 186)		13	5	15	1					1	1
Contusion, back, "G" (Class XXV, Inter. 186)	3	173	42	161	13				34	10	
Contusion, back, "GR" (Class XXV, Inter. 186)		6	3	5	1				3		
Contusion, back, "H" (Class XXV, Inter. 186)		5	2	4	1				2		
Contusion, back, "HR" (Class XXV, Inter. 186)		3		3							
Contusion, back, "I" (Class XXV, Inter. 186)		25	8	21	3						1
Contusion, back, "J" (Class XXV, Inter. 186)		8	3	10	1						
Contusion, back, "K" (Class XXV, Inter. 186)		3	13	9	1					2	
Contusion, back, "L" (Class XXV, Inter. 186)	1	75	32	77	9				21	1	
Contusion, bladder, "G" (Class XXV, Inter. 186)			1		1						
Contusion, ear, "G" (Class XXV, Inter. 186)		1							1		
Contusion, ear, "J" (Class XXV, Inter. 186)		2	1	3							
Contusion, ear, "L" (Class XXV, Inter. 186)		2		2							
Contusion, elbow, "G" (Class XXV, Inter. 186)	1	57	6	53	3				6	2	
Contusion, elbow, "H" (Class XXV, Inter. 186)		2		2							
Contusion, elbow, "HS" (Class XXV, Inter. 186)		1		1							
Contusion, elbow, "I" (Class XXV, Inter. 186)		4		3	1					0	
Contusion, elbow, "J" (Class XXV, Inter. 186)		8	2	8					2		
Contusion, elbow, "L" (Class XXV, Inter. 186)		21	2	22					1		
Contusion, eye, "E" (Class XXV, Inter. 186)		1	2		1				1	1	
Contusion, eye, "F" (Class XXV, Inter. 186)		3	2	5							
Contusion, eye, "G" (Class XXV, Inter. 186)		15	4	15	1				3		
Contusion, eye, "GR" (Class XXV, Inter. 186)		2		2							
Contusion, eye, "H" (Class XXV, Inter. 186)		4		4							
Contusion, eye, "I" (Class XXV, Inter. 186)		3	1	4							
Contusion, eye, "J" (Class XXV, Inter. 186)		30	5	30	2				2	1	
Contusion, eye, "K" (Class XXV, Inter. 186)		3	2	2					3		
Contusion, eye, "L" (Class XXV, Inter. 186)	2	79	19	81			1		17	1	
Contusion, face, "G" (Class XXV, Inter. 186)		19	5	17	3				4		
Contusion, face, "GR" (Class XXV, Inter. 186)		2		2							
Contusion, face, "H" (Class XXV, Inter. 186)		2		1					1		
Contusion, face, "I" (Class XXV, Inter. 186)		3	1						3	1	
Contusion, face, "J" (Class XXV, Inter. 186)		9	3	7	2				3		
Contusion, face, "K" (Class XXV, Inter. 186)			1	1							
Contusion, face, "L" (Class XXV, Inter. 186)	1	31	8	28	3				8	1	
Contusion, finger, "E" (Class XXV, Inter. 186)		1		1							



TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1918—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Fracture, finger, "F" (Class KV, Inter. 186)		2		1					1		2
Fracture, finger, "G" (Class KV, Inter. 186)	1	8		9							48
Fracture, finger, "H" (Class KV, Inter. 186)		22	1	22						1	174
Fracture, finger, "HS" (Class KV, Inter. 186)		1		1							2
Fracture, finger, "I" (Class KV, Inter. 186)	1	78	7	77	2				6	1	722
Fracture, finger, "J" (Class KV, Inter. 186)		12	2	13					1		65
Fracture, finger, "K" (Class KV, Inter. 186)		1		1							5
Fracture, finger, "L" (Class KV, Inter. 186)		80	10	82	5				2	1	801
Fracture, foot, "E" (Class KV, Inter. 186)	1	4	1	5					1		86
Fracture, foot, "F" (Class KV, Inter. 186)		1	1						1	1	27
Fracture, foot, "G" (Class KV, Inter. 186)		61	12	54	5				12	2	499
Fracture, foot, "GR" (Class KV, Inter. 186)		2		2							46
Fracture, foot, "H" (Class KV, Inter. 186)		43	14	37	3				14	3	557
Fracture, foot, "I" (Class KV, Inter. 186)	4	206	39	186	17				38	8	2,211
Fracture, foot, "J" (Class KV, Inter. 186)	1	25	10	25	5				6		286
Fracture, foot, "K" (Class KV, Inter. 186)		3	8	9					2		170
Fracture, foot, "L" (Class KV, Inter. 186)	3	370	67	350	22				50	18	3,765
Fracture, forearm, "E" (Class KV, Inter. 186)		2		2							8
Fracture, forearm, "F" (Class KV, Inter. 186)		1		1							6
Fracture, forearm, "G" (Class KV, Inter. 186)		19	7	21	1				4		149
Fracture, forearm, "H" (Class KV, Inter. 186)		2		2							28
Fracture, forearm, "I" (Class KV, Inter. 186)		6	3	6	1				1	1	32
Fracture, forearm, "J" (Class KV, Inter. 186)		4	2	3	1				2		30
Fracture, forearm, "L" (Class KV, Inter. 186)	1	21	1	22					1		95
Fracture, hand, "G" (Class KV, Inter. 186)		18	2	17					2	1	175
Fracture, hand, "H" (Class KV, Inter. 186)		20	5	19	1				4	1	261
Fracture, hand, "HR" (Class KV, Inter. 186)		1		1							35
Fracture, hand, "I" (Class KV, Inter. 186)		44		42					1	1	382
Fracture, hand, "J" (Class KV, Inter. 186)		18		17					1		83
Fracture, hand, "K" (Class KV, Inter. 186)			2	1						1	34
Fracture, hand, "L" (Class KV, Inter. 186)		90	10	87	5				8		685
Fracture, hand, "LS" (Class KV, Inter. 186)		1		1							4
Fracture, head, "G" (Class KV, Inter. 186)	3	119	51	110	20		2		38	3	789
Fracture, head, "GR" (Class KV, Inter. 186)		4	1	3	1				1		20
Fracture, head, "H" (Class KV, Inter. 186)		10	3	10	1				2		63
Fracture, head, "I" (Class KV, Inter. 186)		18	2	19	1						87
Fracture, head, "J" (Class KV, Inter. 186)		15	8	17	1				5		155
Fracture, head, "K" (Class KV, Inter. 186)		1	1	2							13
Fracture, head, "L" (Class KV, Inter. 186)	1	113	47	108	11				38	4	954
Fracture, head, "LR" (Class KV, Inter. 186)		1		1							1

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1918—Co

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.
<b>INJURIES—Continued.</b>										
Contusion, hip, "F" (Class XXV, Inter. 186)		1							1	
Contusion, hip, "G" (Class XXV, Inter. 186)	2	70	20	72	10				9	1
Contusion, hip, "H" (Class XXV, Inter. 186)		5		5						
Contusion, hip, "HR" (Class XXV, Inter. 186)		1		1						
Contusion, hip, "I" (Class XXV, Inter. 186)	1	9	4	5	2				3	
Contusion, hip, "IS" (Class XXV, Inter. 186)		1		1						
Contusion, hip, "J" (Class XXV, Inter. 186)		13	6	12	3				4	
Contusion, hip, "K" (Class XXV, Inter. 186)		1	2	2						1
Contusion, hip, "L" (Class XXV, Inter. 186)		36	12	38	4					9
Contusion, kidney, "G" (Class XXV, Inter. 186)		2		2						
Contusion, kidney, "L" (Class XXV, Inter. 186)		2	1	2					1	
Contusion, knee, "F" (Class XXV, Inter. 186)			1	1						
Contusion, knee, "G" (Class XXV, Inter. 186)	3	234	41	222	14		2		27	13
Contusion, knee, "GR" (Class XXV, Inter. 186)		3	1	3					1	
Contusion, knee, "H" (Class XXV, Inter. 186)	1	12	2	12					3	
Contusion, knee, "I" (Class XXV, Inter. 186)	1	18	3	20					2	
Contusion, knee, "J" (Class XXV, Inter. 186)		54	11	51	2				10	2
Contusion, knee, "K" (Class XXV, Inter. 186)		2	12	6					6	2
Contusion, knee, "L" (Class XXV, Inter. 186)		155	39	151	7			1	33	2
Contusion, leg, "F" (Class XXV, Inter. 186)		1		1						
Contusion, leg, "G" (Class XXV, Inter. 186)	3	80	20	75	8		1		13	6
Contusion, leg, "GR" (Class XXV, Inter. 186)		2	1	1	1				1	
Contusion, leg, "H" (Class XXV, Inter. 186)	1	13	2	14					2	
Contusion, leg, "HR" (Class XXV, Inter. 186)		1		1						
Contusion, leg, "HS" (Class XXV, Inter. 186)		1		1						
Contusion, leg, "I" (Class XXV, Inter. 186)	1	26	4	25	1				5	
Contusion, leg, "IS" (Class XXV, Inter. 186)		1		1						
Contusion, leg, "J" (Class XXV, Inter. 186)		19	2	21						
Contusion, leg, "K" (Class XXV, Inter. 186)		3		1					2	
Contusion, leg, "L" (Class XXV, Inter. 186)	1	118	36	117	15				21	5
Contusion, lower extremity, "G" (Class XXV, Inter. 186)		5		5						
Contusion, lower extremity, "GR" (Class XXV, Inter. 186)		1							1	
Contusion, lower extremity, "I" (Class XXV, Inter. 186)		1							1	
Contusion, lower extremity, "L" (Class XXV, Inter. 186)		4	3	5	2					
Contusion, maxilla, "E" (Class XXV, Inter. 186)		1							1	
Contusion, maxilla, "G" (Class XXV, Inter. 186)		4	1	2					2	1
Contusion, maxilla, "H" (Class XXV, Inter. 186)		1	1	2						
Contusion, maxilla, "I" (Class XXV, Inter. 186)		1							1	
Contusion, maxilla, "J" (Class XXV, Inter. 186)		6	2	7	1					
Contusion, maxilla, "K" (Class XXV, Inter. 186)		1							1	

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1918—Contd.

Diagnoses.	Rem.	A.	R.A.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Contusion, maxilla, "L" (Class XXV, Inter. 186)		7	8	10	2				2	1	204
Contusion, mouth, "E" (Class XXV, Inter. 186)		1		1							8
Contusion, mouth, "G" (Class XXV, Inter. 186)		1	2	1	1				1		15
Contusion, mouth, "I" (Class XXV, Inter. 186)		1		1							4
Contusion, mouth, "J" (Class XXV, Inter. 186)		1		1							4
Contusion, mouth, "L" (Class XXV, Inter. 186)		4	2	2	3				1		7
Contusion, mouth, "LR" (Class XXV, Inter. 186)		1		1							3
Contusion, multiple, "F" (Class XXV, Inter. 186)		1		1							0
Contusion, multiple, "G" (Class XXV, Inter. 186)	5	35	16	30	11				15		617
Contusion, multiple, "GR" (Class XXV, Inter. 186)		10	8	7	5				6		177
Contusion, multiple, "H" (Class XXV, Inter. 186)		9	5	10	2				1	1	242
Contusion, multiple, "I" (Class XXV, Inter. 186)	1	7	5	5	1	1	1		3	2	64
Contusion, multiple, "J" (Class XXV, Inter. 186)		4	1	5							14
Contusion, multiple, "K" (Class XXV, Inter. 186)		2	3	2	1				2		70
Contusion, multiple, "L" (Class XXV, Inter. 186)	1	30	17	21	8				17	2	653
Contusion, neck, "G" (Class XXV, Inter. 186)		7	2	7					2		35
Contusion, neck, "GR" (Class XXV, Inter. 186)		1		1							11
Contusion, neck, "H" (Class XXV, Inter. 186)	1	3		3						1	384
Contusion, neck, "J" (Class XXV, Inter. 186)		3		3							15
Contusion, neck, "L" (Class XXV, Inter. 186)		6	1	6					1		69
Contusion, nose, "G" (Class XXV, Inter. 186)		6	1	6					1		88
Contusion, nose, "GR" (Class XXV, Inter. 186)		3		3							6
Contusion, nose, "H" (Class XXV, Inter. 186)		1		1							1
Contusion, nose, "I" (Class XXV, Inter. 186)		1		1							1
Contusion, nose, "J" (Class XXV, Inter. 186)		4	2	3	1				2		10
Contusion, nose, "K" (Class XXV, Inter. 186)			1	1							1
Contusion, nose, "L" (Class XXV, Inter. 186)		10	2	8	1				2	1	58
Contusion, penis, "I" (Class XXV, Inter. 186)		1	1	1	1						6
Contusion, penis, "L" (Class XXV, Inter. 186)		2	1	3							42
Contusion, rectum, "H" (Class XXV, Inter. 186)			1		1						4
Contusion, rectum, "J" (Class XXV, Inter. 186)		1		1							10
Contusion, shoulder, "E" (Class XXV, Inter. 186)		2	2	2					2		8
Contusion, shoulder, "F" (Class XXV, Inter. 186)			1		1						25
Contusion, shoulder, "G" (Class XXV, Inter. 186)	3	81	26	81	11				18	2	920
Contusion, shoulder, "GR" (Class XXV, Inter. 186)		2	1	1	1				1		13
Contusion, shoulder "H" (Class XXV, Inter. 186)		4		4							42
Contusion, shoulder, "I" (Class XXV, Inter. 186)		10		10							41
Contusion, shoulder, "J" (Class XXV, Inter. 186)		42	8	41	3				3	3	307
Contusion, shoulder, "K" (Class XXV, Inter. 186)		1	5	4	1					1	102
Contusion, shoulder, "L" (Class XXV, Inter. 186)	1	57	11	56	3				10		584

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1918—

Diagnoses.	Rem.	A.	RA.	Di	C.	DD.	IS.	R.	T.	Cont.
<b>INJURIES—Continued.</b>										
Contusion, testicle, "F" (Class XXV, Inter. 186)		2			1					1
Contusion, testicle, "G" (Class XXV, Inter. 186)		29	7	28	3		1			3
Contusion, testicle, "H" (Class XXV, Inter. 186)				1						1
Contusion, testicle, "I" (Class XXV, Inter. 186)		5	1	6						
Contusion, testicle, "J" (Class XXV, Inter. 186)		28	2	28						2
Contusion, testicle, "L" (Class XXV, Inter. 186)		27	4	27	1					2
Contusion, thigh, "F" (Class XXV, Inter. 186)			1	1						
Contusion, thigh, "G" (Class XXV, Inter. 186)	2	54	13	54	4					10
Contusion, thigh, "GR" (Class XXV, Inter. 186)		5	1	4	1					1
Contusion, thigh, "H" (Class XXV, Inter. 186)		10	3	9	10					3
Contusion, thigh, "HR" (Class XXV, Inter. 186)				1	1					
Contusion, thigh, "I" (Class XXV, Inter. 186)	1	18	4	21	1					1
Contusion, thigh, "J" (Class XXV, Inter. 186)		7	3	7	2					
Contusion, thigh, "K" (Class XXV, Inter. 186)		1	2	3						
Contusion, thigh, "L" (Class XXV, Inter. 186)	1	42	8	43	1					6
Contusion, thorax, "F" (Class XXV, Inter. 186)		1	1	1						1
Contusion, thorax, "G" (Class XXV, Inter. 186)	1	84	21	92	9					3
Contusion, thorax, "GR" (Class XXV, Inter. 186)		3	1	2						1
Contusion, thorax, "H" (Class XXV, Inter. 186)		6	1	5	1					1
Contusion, thorax, "HR" (Class XXV, Inter. 186)		2		2						
Contusion, thorax, "I" (Class XXV, Inter. 186)		11	6	14	1					2
Contusion, thorax, "J" (Class XXV, Inter. 186)		31	2	30	1					2
Contusion, thorax, "K" (Class XXV, Inter. 186)			3	3						
Contusion, thorax, "L" (Class XXV, Inter. 186)		48	14	44	6					8
Contusion, toe, "G" (Class XXV, Inter. 186)	1	13	3	14						3
Contusion, toe, "H" (Class XXV, Inter. 186)	1	7	2	7	1					2
Contusion, toe, "I" (Class XXV, Inter. 186)	1	112	6	106	2					7
Contusion, toe, "J" (Class XXV, Inter. 186)		8	1	8						1
Contusion, toe, "K" (Class XXV, Inter. 186)		2	2	3						1
Contusion, toe, "L" (Class XXV, Inter. 186)		127	9	128	3					3
Contusion, unqualified, "F" (Class XXV, Inter. 186)		1		1						
Contusion, unqualified, "G" (Class XXV, Inter. 186)	2	17	2	19	1					1
Contusion, unqualified, "H" (Class XXV, Inter. 186)		2		2						
Contusion, unqualified, "I" (Class XXV, Inter. 186)		9		7						2
Contusion, unqualified, "J" (Class XXV, Inter. 186)		1	2	1	2					
Contusion, unqualified, "K" (Class XXV, Inter. 186)		1								1
Contusion, unqualified, "L" (Class XXV, Inter. 186)	1	8	1	9						1
Contusion, upper extremity, "G" (Class XXV, Inter. 186)		1								1
Contusion, upper extremity, "I" (Class XXV, Inter. 186)		1								1
Contusion, upper extremity, "J" (Class XXV, Inter. 186)		1		1						

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1918—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Contusion, upper extremity, "L" (Class XXV, Inter. 186)		2		2							35
Contusion, wrist, "G" (Class XXV, Inter. 186)		11	1	11					1		116
Contusion, wrist, "H" (Class XXV, Inter. 186)		5		5							37
Contusion, wrist, "I" (Class XXV, Inter. 186)		2		2							112
Contusion, wrist, "J" (Class XXV, Inter. 186)		5	1	5					1		45
Contusion, wrist, "L" (Class XXV, Inter. 186)		21	3	20	1				3		171
Crush, abdomen, "G" (Class XXV, Inter. 186)		1		1							11
Crush, abdomen, "H" (Class XXV, Inter. 186)		1	1	1							14
Crush, abdomen, "I" (Class XXV, Inter. 186)		1							1		0
Crush, abdomen, "L" (Class XXV, Inter. 186)		1	1				1		1		119
Crush, ankle, "H" (Class XXV, Inter. 186)		1							1		0
Crush, ankle, "I" (Class XXV, Inter. 186)		1		1							0
Crush, arm, "G" (Class XXV, Inter. 186)		1		1							0
Crush, arm, "H" (Class XXV, Inter. 186)		2	1	2					1		26
Crush, back, "L" (Class XXV, Inter. 186)		1	1	2							21
Crush, cartilage, "I" (Class XXV, Inter. 186)		1		1							13
Crush, elbow, "I" (Class XXV, Inter. 186)		1		1							14
Crush, face, "I" (Class XXV, Inter. 186)		1	1						1	1	7
Crush, finger, "E" (Class XXV, Inter. 186)		1		1							23
Crush, finger, "G" (Class XXV, Inter. 186)		2		2							6
Crush, finger, "H" (Class XXV, Inter. 186)	2	69	22	57	1		2		23	10	1,734
Crush, finger, "I" (Class XXV, Inter. 186)	2	96	29	85	2		5		26	9	2,041
Crush, finger, "J" (Class XXV, Inter. 186)		3		3							47
Crush, finger, "K" (Class XXV, Inter. 186)		3		2					1		72
Crush, finger, "L" (Class XXV, Inter. 186)		30	14	35	2		1		5	1	749
Crush, foot, "C" (Class XXV, Inter. 186)		1		1							4
Crush, foot, "E" (Class XXV, Inter. 186)			1			1					177
Crush, foot, "F" (Class XXV, Inter. 186)			1						1		42
Crush, foot, "G" (Class XXV, Inter. 186)		3	2	2					2	1	192
Crush, foot, "H" (Class XXV, Inter. 186)		10	9	8	1		1		6	3	498
Crush, foot, "I" (Class XXV, Inter. 186)		37	18	27	2		4		17	5	1,701
Crush, foot, "L" (Class XXV, Inter. 186)	2	8	5	12	1				2		539
Crush, forearm, "I" (Class XXV, Inter. 186)		2	2		2				2		7
Crush, hand, "H" (Class XXV, Inter. 186)		9	9	5			2		9	2	522
Crush, hand, "I" (Class XXV, Inter. 186)	2	19	13	16	1		4		13		600
Crush, hand, "L" (Class XXV, Inter. 186)	1	5		5			1				91
Crush, knee, "G" (Class XXV, Inter. 186)		1		1							27
Crush, knee, "H" (Class XXV, Inter. 186)		1		1							11
Crush, knee, "I" (Class XXV, Inter. 186)		2	2	1			1		2		37
Crush, knee, "L" (Class XXV, Inter. 186)		1					1				10

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1918.—

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.
<b>INJURIES—Continued.</b>										
Crush, eg, "F" (Class XXV, Inter. 186)		1					1			
Crush, leg, "GR" (Class XXV, Inter. 186)		4					4			
Crush, leg, "H" (Class XXV, Inter. 186)	1	1	7	2	2				3	
Crush, leg, "I" (Class XXV, Inter. 186)	1	4		2	1				2	
Crush, lower extremity, "H" (Class XXV, Inter. 186)			2	1					1	
Crush, lower extremity, "I" (Class XXV, Inter. 186)		1							1	
Crush, maxilla, "L" (Class XXV, Inter. 186)		1	1					1	1	
Crush, multiple, "I" (Class XXV, Inter. 186)		4	1				3		1	
Crush, multiple, "L" (Class XXV, Inter. 186)		1					1			
Crush, neck, "G" (Class XXV, Inter. 186)		1					1			
Crush, pelvis, "I" (Class XXV, Inter. 186)		1	3	2					2	
Crush, shoulder, "I" (Class V, Inter. 186)	1			1						
Crush, skull, "HR" (Class XXV, Inter. 186)		3					3			
Crush, testicle, "G" (Class XXV, Inter. 186)		1		1						
Crush, thigh, "I" (Class XXV, Inter. 186)		3	2	2				2	1	
Crush, thorax, "G" (Class XXV, Inter. 186)			1				1			
Crush, thorax, "I" (Class XXV, Inter. 186)		5					5			
Crush, thorax, "L" (Class XXV, Inter. 186)		2	2	2	1				1	
Crush, toe, "E" (Class XXV, Inter. 186)		2	1	3						
Crush, toe, "G" (Class XXV, Inter. 186)			1	1						
Crush, toe, "H" (Class XXV, Inter. 186)		5	1	4					1	
Crush, toe, "I" (Class XXV, Inter. 186)		35	6	32						
Crush, toe, "L" (Class XXV, Inter. 186)		13	7	15					4	
Crush, unqualified, "I" (Class XXV, Inter. 186)		2		2						
Crush, unqualified, "L" (Class XXV, Inter. 186)			1			1				
Crush, upper extremity, "H" (Class XXV, Inter. 186)		1		1						
Decapitation, "L" (Class XXV, Inter. 186)		1					1			
Dislocation, ankle, "G" (Class XXV, Inter. 185A)		9	4	3	2			1	6	
Dislocation, ankle, "H" (Class XXV, Inter. 185A)		3		1				1	1	
Dislocation, ankle, "J" (Class XXV, Inter. 185A)	1	3	4	1	3				3	
Dislocation, ankle, "L" (Class XXV, Inter. 185A)	1	2	6	4				1	4	
Dislocation, clavicle, "E" (Class XXV, Inter. 185A)		1		1						
Dislocation, clavicle, "G" (Class XXV, Inter. 185A)		9	5	8	2				3	
Dislocation, clavicle, "H" (Class XXV, Inter. 185A)			1	1						
Dislocation, clavicle, "J" (Class XXV, Inter. 185A)		8	4	6	1				5	
Dislocation, clavicle, "L" (Class XXV, Inter. 185A)	1	5	7	7	1				5	
Dislocation, elbow, "G" (Class XXV, Inter. 185A)		24	15	21	2			3	12	
Dislocation, elbow, "GR" (Class XXV, Inter. 185A)		2	1	1					2	
Dislocation, elbow, "H" (Class XXV, Inter. 185A)		1				1				
Dislocation, elbow, "HR" (Class XXV, Inter. 185A)			1	1						

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1918—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Dislocation, elbow, "J" (Class XXV, Inter. 185A)		13	5	6	1				6	2	225
Dislocation, elbow, "L" (Class XXV, Inter. 185A)		7	5	4					5	3	265
Dislocation, facial, "G" (Class XXV, Inter. 185A)		1		1							4
Dislocation, femur, "L" (Class XXV, Inter. 185A)		1	1	2							53
Dislocation, fibula, "J" (Class XXV, Inter. 185A)		1		1							7
Dislocation, fibula, "L" (Class XXV, Inter. 185A)		1							1		0
Dislocation, finger, "G" (Class XXV, Inter. 185A)	1	11	2	8	1		1		2	2	131
Dislocation, finger, "H" (Class XXV, Inter. 185A)		2		2							8
Dislocation, finger, "I" (Class XXV, Inter. 185A)		1		1							5
Dislocation, finger, "J" (Class XXV, Inter. 185A)		21	2	20					3		198
Dislocation, finger, "L" (Class XXV, Inter. 185A)	2	15	5	15	2				5		202
Dislocation, foot, "G" (Class XXV, Inter. 185A)		1	3	1	1				2		235
Dislocation, foot, "I" (Class XXV, Inter. 185A)		1	1		1				1		28
Dislocation, foot, "J" (Class XXV, Inter. 185A)		1					1				32
Dislocation, foot, "L" (Class XXV, Inter. 185A)		1	1				1		1		117
Dislocation, hand, "G" (Class XXV, Inter. 185A)		3	1	3						1	108
Dislocation, hand, "HR" (Class XXV, Inter. 185A)		1	1						1	1	3
Dislocation, hand, "I" (Class XXV, Inter. 185A)		1		1							11
Dislocation, hand, "J" (Class XXV, Inter. 185A)		4		4							41
Dislocation, hand, "L" (Class XXV, Inter. 185A)		5	1	5					1		93
Dislocation, hip, "G" (Class XXV, Inter. 185A)		6	9	5	3		1		4	2	406
Dislocation, hip, "H" (Class XXV, Inter. 185A)			1		1						23
Dislocation, hip, "I" (Class XXV, Inter. 185A)		1							1		0
Dislocation, hip, "J" (Class XXV, Inter. 185A)		2	1		1				2		3
Dislocation, hip, "L" (Class XXV, Inter. 185A)		5	3	1	1		3		2	1	71
Dislocation, humerus, "G" (Class XXV, Inter. 185A)		5	1	5					1		47
Dislocation, humerus, "J" (Class XXV, Inter. 185A)		1		1							8
Dislocation, humerus, "L" (Class XXV, Inter. 185A)		2	2	3					1		23
Dislocation, intra-articular cartilage of joint, "G" (Class XXV, Inter. 185A)		12	8	9	1		1		8	1	430
Dislocation, intra-articular cartilage of joint, "H" (Class XXV, Inter. 185A)			1				1				12
Dislocation, intra-articular cartilage of joint, "J" (Class XXV, Inter. 185A)		17	14	13	3		2		10	3	404
Dislocation, intra-articular cartilage of joint, "K" (Class XXV, Inter. 185A)		1	1	2							94
Dislocation, intra-articular cartilage of joint, "L" (Class XXV, Inter. 185A)		15	19	14	3		4		9	4	999
Dislocation, knee, "E" (Class XXV, Inter. 185A)		1		1							122
Dislocation, knee, "G" (Class XXV, Inter. 185A)		1	5	2	1				3		67
Dislocation, knee, "H" (Class XXV, Inter. 185A)		30	19	22	4		1		19	3	854
Dislocation, knee, "HR" (Class XXV, Inter. 185A)		2		2							32
Dislocation, knee, "I" (Class XXV, Inter. 185A)		1	6	1	1				5		120

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1918

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	C.
<b>INJURIES—Continued.</b>										
Dislocation, knee, "J" (Class XXV, Inter. 185A)		15	13	11	2		3		9	
Dislocation, knee, "K" (Class XXV, Inter. 185A)			3						1	
Dislocation, knee, "L" (Class XXV, Inter. 185A)	2	22	17	17	2		8		13	
Dislocation of lens, "L" (Class XXV, Inter. 185A)		2	2	1	1				2	
Dislocation, maxilla, "B" (Class XXV, Inter. 185A)		1		1						
Dislocation, maxilla, "L" (Class XXV, Inter. 185A)		4		4						
Dislocation, multiple, "J" (Class XXV, Inter. 185A)	1			1						
Dislocation, nasal bone, "L" (Class XXV, Inter. 185A)		2	2	2	1				1	
Dislocation, patella, "I" (Class XXV, Inter. 185A)		1					1			
Dislocation, pelvis, "G" (Class XXV, Inter. 185A)		2	1	1					2	
Dislocation, pelvis, "L" (Class XXV, Inter. 185A)		2	1	1	1				1	
Dislocation, radius, "G" (Class XXV, Inter. 185A)		4	2	4					2	
Dislocation, radius and ulna, "G" (Class XXV, Inter. 185A)		1	3	3					1	
Dislocation, radius and ulna, "J" (Class XXV, Inter. 185A)		1		1						
Dislocation, radius and ulna, "L" (Class XXV, Inter. 185A)			1	1						
Dislocation, rib, "G" (Class XXV, Inter. 185A)		2	2	4						
Dislocation, rib, "J" (Class XXV, Inter. 185A)		1		1						
Dislocation, rib, "L" (Class XXV, Inter. 185A)	1	3		3	1					
Dislocation, scapula, "L" (Class XXV, Inter. 185A)		1	1	1	1					
Dislocation, shoulder, "G" (Class XXV, Inter. 185A)	3	88	29	79	6		3		25	
Dislocation, shoulder, "GR" (Class XXV, Inter. 185A)		1		1						
Dislocation, shoulder, "H" (Class XXV, Inter. 185A)		3	1	2					2	
Dislocation, shoulder, "I" (Class XXV, Inter. 185A)		1	2	1	1				1	
Dislocation, shoulder, "J" (Class XXV, Inter. 185A)		74	33	81	3		3		19	
Dislocation, shoulder, "L" (Class XXV, Inter. 185A)	2	66	35	63	3		10		24	
Dislocation, shoulder, "LR" (Class XXV, Inter. 185A)		1		1						
Dislocation, tibia, "L" (Class XXV, Inter. 185A)		1							1	
Dislocation, tibia and fibula, "G" (Class XXV, Inter. 185A)		1	1	1					1	
Dislocation, tibia and fibula, "H" (Class XXV, Inter. 185A)			1	1						
Dislocation, tibia and fibula, "J" (Class XXV, Inter. 185A)		1		1						
Dislocation, tibia and fibula, "L" (Class XXV, Inter. 185A)		1	1	1	1					
Dislocation, toe, "E" (Class XXV, Inter. 185A)		1	1	1					1	
Dislocation, toe, "G" (Class XXV, Inter. 185A)		4		3			1			
Dislocation, toe, "H" (Class XXV, Inter. 185A)		1		1						
Dislocation, toe, "I" (Class XXV, Inter. 185A)		2	1	2					1	
Dislocation, toe, "J" (Class XXV, Inter. 185A)		4		4						
Dislocation, toe, "L" (Class XXV, Inter. 185A)		1	1	1			1			
Dislocation, ulna, "G" (Class XXV, Inter. 185A)		2	1	1					2	
Dislocation, ulna, "L" (Class XXV, Inter. 185A)		2	1		1				1	
Dislocation, unqualified, "G" (Class XXV, Inter. 185A)	1	2	1	3					1	
Dislocation, unqualified, "J" (Class XXV, Inter. 185A)		1		1						



TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1918—Contd.

Diagnoses.	Ram.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Dislocation, unqualified, "L" (Class XXV, Inter. 185A).....		2	1	2					1		18
Dislocation, upper extremity, "G" (Class XXV, Inter. 185A).....		2		1					1		0
Dislocation, vertebra, "G" (Class XXV, Inter. 185A).....	2	3	2	4	1		1		1		122
Dislocation, vertebra, "GR" (Class XXV, Inter. 185A).....		1								1	1
Dislocation, vertebra, "IR" (Class XXV, Inter. 185A).....		1							1		0
Dislocation, vertebra, "J" (Class XXV, Inter. 185A).....		3	1			1			2	1	66
Dislocation, vertebra, "L" (Class XXV, Inter. 185A).....		5	5	1	2		3		4		397
Dislocation, wrist, "G" (Class XXV, Inter. 185A).....		12	6	13	1				3	1	242
Dislocation, wrist, "H" (Class XXV, Inter. 185A).....		2		1			1				22
Dislocation, wrist, "I" (Class XXV, Inter. 185A).....		1					1				26
Dislocation, wrist, "J" (Class XXV, Inter. 185A).....		1	1	1					1		30
Dislocation, wrist, "L" (Class XXV, Inter. 185A).....		4	1	3					2		67
Browning, "A" (Class XXV, Inter. 169B).....		8				8					0
Browning, "B" (Class XXV, Inter. 169B).....		5	1			5	1				0
Browning, "DR" (Class XXV, Inter. 169B).....		35				35					0
Browning, "DS" (Class XXV, Inter. 169B).....		4				4					0
Browning, "DU" (Class XXV, Inter. 169B).....		1				1					0
Browning, "GR" (Class XXV, Inter. 169B).....		1				1					0
Browning, "K" (Class XXV, Inter. 169B).....		312				312					0
Electric shock, injury from, "L" (Class XXV, Inter. 181).....		7		3	1	3					15
Emphysema, traumatic, eye, "L" (Class XXV, Inter. 186).....		1		1							2
Emphysema, traumatic, leg, "L" (Class XXV, Inter. 183).....		1	1		1				1		9
Epiphyseal separation, cartilage of knee, "L" (Class XXV, Inter. 185C).....		1							1		0
Epiphyseal separation, clavicle, "L" (Class XXV, Inter. 185C).....		1	1	1					1		16
Epiphyseal separation, femur, "L" (Class XXV, Inter. 185C).....		1	1	1					1		79
Epiphyseal separation, fibula, "L" (Class XXV, Inter. 185C).....		1		1							12
Epiphyseal separation, humerus, "G" (Class XXV, Inter. 185C).....		1								1	10
Epiphyseal separation, humerus, "L" (Class XXV, Inter. 185C).....		1		1							50
Epiphyseal separation, knee, "L" (Class XXV, Inter. 185C).....		1					1				60
Epiphyseal separation, metatarsal, "G" (Class XXV, Inter. 185C).....		1		1							32
Epiphyseal separation, nasal bone, "L" (Class XXV, Inter. 185C).....		1		1							7
Epiphyseal separation, radius, "G" (Class XXV, Inter. 185C).....		2		1						1	26
Epiphyseal separation, radius, "H" (Class XXV, Inter. 185C).....		2		2							20
Epiphyseal separation, radius and ulna, "G" (Class XXV, Inter. 185C).....		1	2	1	1				1		13
Epiphyseal separation, radius and ulna, "L" (Class XXV, Inter. 185C).....		2	1	2					1		84
Epiphyseal separation, rib, "L" (Class XXV, Inter. 185C).....			1		1						8
Epiphyseal separation, shoulder, "G" (Class XXV, Inter. 185C).....		1			1						58
Epiphyseal separation, shoulder, "L" (Class XXV, Inter. 185C).....		1					1				16

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1918—Con-

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cent. D.
<b>INJURIES—Continued.</b>										
Epiphyseal separation, tibia, "J" (Class XXV, Inter. 185C).....		2	2	2					2	
Epiphyseal separation, tibia, "L" (Class XXV, Inter. 185C).....		1		1						
Epiphyseal separation, tibia and fibula, "G" (Class XXV, Inter. 185C).....		1		1						
Epiphyseal separation, vertebra, "L" (Class XXV, Inter. 185C).....		1	2	1	1				1	
Exhaustion from heat, "C" (Class XXV, Inter. 179A).....		2		1					1	
Exhaustion from heat "J" (Class XXV, Inter. 179A).....		1		1						
Exhaustion from heat, "L" (Class XXV, Inter. 179A).....	1	323	51	315	18	1	1		38	2
Exhaustion from over-exertion, "J" (Class XXV, Inter. 177A).....		3	1	3					1	
Exhaustion from over-exertion "K" (Class XXV, Inter. 177A).....		12	30	28	4				8	2
Exhaustion from over-exertion, "L" (Class XXV, Inter. 177A).....		142	61	160	9				27	7
Exhaustion from over-exposure, "C" (Class XXV, Inter. 177A).....		1							1	
Exhaustion from over-exposure, "D" (Class XXV, Inter. 177A).....		7		6	1					
Exhaustion from over-exposure, "J" (Class XXV, Inter. 177A).....		1		1						
Exhaustion from over-exposure, "K" (Class XXV, Inter. 177A).....	2	85	23	84	6	1			14	5
Exhaustion from over-exposure, "KR" (Class XXV, Inter. 177A).....		1							1	
Exhaustion from over-exposure, "L" (Class XXV, Inter. 177A).....	2	150	138	118	14	1			137	20
Foreign body, traumatic, ankle, "L" (Class XXV, Inter. 186).....		1	1	1					1	
Foreign body, traumatic, arm, "G" (Class XXV, Inter. 186).....		1					1			
Foreign body, traumatic, arm, "L" (Class XXV, Inter. 186).....	1	6		3					4	
Foreign body, traumatic, back, "E" (Class XXV, Inter. 186).....		2	3	2	1				2	
Foreign body, traumatic, back, "L" (Class XXV, Inter. 186).....		2	4	2					3	1
Foreign body, traumatic, clavicle, "E" (Class XXV, Inter. 186).....		1	1	1					1	
Foreign body, traumatic, ear, "L" (Class XXV, Inter. 186).....		1	1	1					1	
Foreign body, traumatic, elbow, "E" (Class XXV, Inter. 186).....		2	4	2	1				3	
Foreign body, traumatic, elbow, "L" (Class XXV, Inter. 186).....		1	2						2	1
Foreign body, traumatic, eye, "E" (Class XXV, Inter. 186).....		4	4	2			1		4	1
Foreign body, traumatic, eye, "F" (Class XXV, Inter. 186).....		6	5	6	1				4	
Foreign body, traumatic, eye, "H" (Class XXV, Inter. 186).....	1	21	6	17			2		9	
Foreign body, traumatic, eye, "J" (Class XXV, Inter. 186).....		2		1					1	
Foreign body, traumatic, eye, "K" (Class XXV, Inter. 186).....		1	2	3						
Foreign body, traumatic, eye, "L" (Class XXV, Inter. 186).....		131	47	129	8		3		36	2
Foreign body, traumatic, eye, "LS" (Class XXV, Inter. 186).....		1		1						
Foreign body, traumatic, face, "F" (Class XXV, Inter. 186).....		1		1						
Foreign body, traumatic, face, "L" (Class XXV, Inter. 186).....		1							1	
Foreign body, traumatic, finger, "I" (Class XXV, Inter. 186).....		1	1	1					1	
Foreign body, traumatic, finger, "L" (Class XXV, Inter. 186).....		10	4	10					4	
Foreign body, traumatic, foot, "E" (Class XXV, Inter. 186).....		2	1	1					2	
Foreign body, traumatic, foot, "F" (Class XXV, Inter. 186).....		1		1						
Foreign body, traumatic, foot, "L" (Class XXV, Inter. 186).....		4	2	3	1				2	
Foreign body, traumatic, forearm, "L" (Class XXV, Inter. 186).....				2						

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1918—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Foreign body, traumatic, hand, "E" (Class XXV, Inter. 186).....		1	2			1		1	1		31
Foreign body, traumatic, hand, "G" (Class XXV, Inter. 186).....		1		1							5
Foreign body, traumatic, hand, "L" (Class XXV, Inter. 186).....		7	4	4	1				4	2	100
Foreign body, traumatic, hip, "L" (Class XXV, Inter. 186).....		1		1							13
Foreign body, traumatic, knee, "E" (Class XXV, Inter. 186).....		1		1							3
Foreign body, traumatic, knee, "G" (Class XXV, Inter. 186).....		6	4	5					3	2	297
Foreign body, traumatic, knee, "H" (Class XXV, Inter. 186).....		1								1	21
Foreign body, traumatic, knee, "I" (Class XXV, Inter. 186).....			1	1							12
Foreign body, traumatic, knee, "J" (Class XXV, Inter. 186).....		2	1		1		1		1		294
Foreign body, traumatic, knee, "L" (Class XXV, Inter. 186).....	2			2							68
Foreign body, traumatic, leg, "E" (Class XXV, Inter. 186).....		2		1			1				17
Foreign body, traumatic, leg, "J" (Class XXV, Inter. 186).....		1	1	1					1		9
Foreign body, traumatic, leg, "L" (Class XXV, Inter. 186).....		1	1	2							87
Foreign body, traumatic, lung, "F" (Class XXV, Inter. 186).....		1								1	78
Foreign body, traumatic, neck, "E" (Class XXV, Inter. 186).....		1					1				36
Foreign body, traumatic, rib, "E" (Class XXV, Inter. 186).....		1		1							27
Foreign body, traumatic, scapula, "E" (Class XXV, Inter. 186).....		1	2	2					1		72
Foreign body, traumatic, shoulder, "E" (Class XXV, Inter. 186).....		1									0
Foreign body, traumatic, shoulder, "L" (Class XXV, Inter. 186).....			6	4	1				1		90
Foreign body, traumatic, stomach, "L" (Class XXV, Inter. 186).....		2	1		1				2		3
Foreign body, traumatic, thigh, "E" (Class XXV, Inter. 186).....		1	1	1					1		2
Foreign body, traumatic, thigh, "F" (Class XXV, Inter. 186).....		1	1		1				1		40
Foreign body, traumatic, thigh, "L" (Class XXV, Inter. 186).....		2	1	1					1	1	35
Foreign body, traumatic, throat, "L" (Class XXV, Inter. 186).....		1	1	1					1		3
Foreign body, traumatic, toe, "I" (Class XXV, Inter. 186).....			1	1							43
Foreign body, traumatic, toe, "L" (Class XXV, Inter. 186).....	2			1						1	26
Foreign body, traumatic, unqualified, "F" (Class XXV, Inter. 186).....		1		1							4
Foreign body, traumatic, unqualified, "G" (Class XXV, Inter. 186).....		1	1	1					1		9
Foreign body, traumatic, unqualified, "L" (Class XXV, Inter. 186).....		2		1					1		1
Foreign body, traumatic, wrist, "H" (Class XXV, Inter. 186).....		1	1		1				1		1
Foreign body, traumatic, wrist, "L" (Class XXV, Inter. 186).....		2	5	3					3	1	217
Fracture, compound, about elbow, "G" (Class XXV, Inter. 185C).....	1	2	1	1					2	1	83
Fracture, compound, clavicle, "G" (Class XXV, Inter. 185C).....		1	1	1					1		18
Fracture, compound, clavicle, "I" (Class XXV, Inter. 185C).....			1	1							1
Fracture, compound, clavicle, "L" (Class XXV, Inter. 185C).....		2	1	1					1	1	8
Fracture, compound, femur, "E" (Class XXV, Inter. 185C).....		1							1		0
Fracture, compound, femur, "F" (Class XXV, Inter. 185C).....		1	2		2				1		179

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1918—C

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.
<b>INJURIES—Continued.</b>										
Fracture, compound, femur, "G" (Class XXV, Inter. 185C).....		7	8	2	1		1		7	
Fracture, compound, femur, "H" (Class XXV, Inter. 185C).....		1	1		1				1	
Fracture, compound, femur, "I" (Class XXV, Inter. 185C).....	1	1		1						1
Fracture, compound, femur, "K" (Class XXV, Inter. 185C).....		9	14			1			13	9
Fracture, compound, femur, "L" (Class XXV, Inter. 185C).....		1	5	1					1	1
Fracture, compound, fibula, "E" (Class XXV, Inter. 185C).....			1							1
Fracture, compound, fibula, "F" (Class XXV, Inter. 185C).....		1		1						
Fracture, compound, fibula, "G" (Class XXV, Inter. 185C).....		2	1	3						
Fracture, compound, fibula, "H" (Class XXV, Inter. 185C).....		1		1						
Fracture, compound, fibula, "I" (Class XXV, Inter. 185C).....			1				1			
Fracture, compound, fibula, "J" (Class XXV, Inter. 185C).....		2		1						1
Fracture, compound, fibula, "K" (Class XXV, Inter. 185C).....		1	2	1					1	1
Fracture, compound, fibula, "L" (Class XXV, Inter. 185C).....	1	3	1	3					3	
Fracture, compound, humerus, "E" (Class XXV, Inter. 185C).....			1						1	
Fracture, compound, humerus, "G" (Class XXV, Inter. 185C).....	2	4	9	2	1				9	3
Fracture, compound, humerus, "H" (Class XXV, Inter. 185C).....		1	3	1					2	1
Fracture, compound, humerus, "I" (Class XXV, Inter. 185C).....		2		1					1	
Fracture, compound, humerus, "J" (Class XXV, Inter. 185C).....		1	1						2	
Fracture, compound, humerus, "K" (Class XXV, Inter. 185C).....		10	14			1			11	12
Fracture, compound, humerus, "L" (Class XXV, Inter. 185C).....		3	5	2					5	1
Fracture, compound, lower extremity, "G" (Class XXV, Inter. 185C).....			1							1
Fracture, compound, lower extremity, "I" (Class XXV, Inter. 185C).....			1							1
Fracture, compound, lower extremity, "K" (Class XXV, Inter. 185C).....		2	1						3	
Fracture, compound, maxilla, "F" (Class XXV, Inter. 185C).....		1	1						1	1
Fracture, compound, maxilla, "G" (Class XXV, Inter. 185C).....		4	5	2	1				5	1
Fracture, compound, maxilla, "GR" (Class XXV, Inter. 185C).....		1		1						
Fracture, compound, maxilla, "H" (Class XXV, Inter. 185C).....		2			2					
Fracture, compound, maxilla, "I" (Class XXV, Inter. 185C).....		1		1						
Fracture, compound, maxilla, "J" (Class XXV, Inter. 185C).....		2	2	1					2	1
Fracture, compound, maxilla, "K" (Class XXV, Inter. 185C).....		1	3		1				1	2
Fracture, compound, maxilla, "L" (Class XXV, Inter. 185C).....	3	18	22	11	4		1		19	5
Fracture, compound, metacarpal, "F" (Class XXV, Inter. 185C).....		1							1	
Fracture, compound, metacarpal, "G" (Class XXV, Inter. 185C).....		1	1		1				1	
Fracture, compound, metacarpal, "H" (Class XXV, Inter. 185C).....		3	8	5	1		1		4	
Fracture, compound, metacarpal, "I" (Class XXV, Inter. 185C).....	1	5	2	2	2				3	1
Fracture, compound, metacarpal, "J" (Class XXV, Inter. 185C).....		3	2	3					1	1

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1918—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Fracture, compound, metacarpal, "K" (Class XXV, Inter. 185C).....			2						1	1	198
Fracture, compound, metacarpal, "L" (Class XXV, Inter. 185C).....	1	4	4	3					4	2	453
Fracture, compound, metatarsal, "E" (Class XXV, Inter. 185C).....			5						4	1	151
Fracture, compound, metatarsal, "F" (Class XXV, Inter. 185C).....		1	6						5	2	534
Fracture, compound, metatarsal, "G" (Class XXV, Inter. 185C).....			2		1					1	86
Fracture, compound, metatarsal, "H" (Class XXV, Inter. 185C).....		4	1	2					3		48
Fracture, compound, metatarsal, "I" (Class XXV, Inter. 185C).....		4	7	3	2				5	1	408
Fracture, compound, metatarsal, "J" (Class XXV, Inter. 185C).....	1			1							4
Fracture, compound, metatarsal, "K" (Class XXV, Inter. 185C).....		2	2						3	1	152
Fracture, compound, metatarsal, "L" (Class XXV, Inter. 185C).....		2	2	4							39
Fracture, compound, mult. "P" (Class XXV, Inter. 185C).....		3	2		1				4		152
Fracture, compound, mult. "Q" (Class XXV, Inter. 185C).....	1	1				1			1		1
Fracture, compound, mult. "GR" (Class XXV, Inter. 185C).....	1					1					0
Fracture, compound, mult. "E" (Class XXV, Inter. 185C).....	1								1	1	19
Fracture, compound, mult. "L" (Class XXV, Inter. 185C).....	1			1							62
Fracture, compound, nasal bone, "G" (Class XXV, Inter. 185C).....	9	4	9						4		96
Fracture, compound, nasal bone, "GR" (Class XXV, Inter. 185C).....	2	1			1				2		18
Fracture, compound, nasal bone, "H" (Class XXV, Inter. 185C).....	1	1	1						1		96
Fracture, compound, nasal bone, "I" (Class XXV, Inter. 185C).....	1			1							0
Fracture, compound, nasal bone, "J" (Class XXV, Inter. 185C).....	16	11	14		1				10	2	229
Fracture, compound, nasal bone, "L" (Class XXV, Inter. 185C).....	29	9	23		1				12	2	567
Fracture, compound, patella, "G" (Class XXV, Inter. 185C).....	3	4	2		1				3	1	281
Fracture, compound, patella, "K" (Class XXV, Inter. 185C).....			2						1	1	85
Fracture, compound, patella, "L" (Class XXV, Inter. 185C).....			2	1	1						70
Fracture, compound, pelvis, "I" (Class XXV, Inter. 185C).....	1					1					0
Fracture, compound, phalanges, hand, "E" (Class XXV, Inter. 185C).....	2	2			2		1		1		117
Fracture, compound, phalanges, hand, "F" (Class XXV, Inter. 185C).....	2			2							43
Fracture, compound, phalanges, hand, "G" (Class XXV, Inter. 185C).....	3	1	2						2		98
Fracture, compound, phalanges, hand, "H" (Class XXV, Inter. 185C).....	32	17	35		1				10	3	2,701
Fracture, compound, phalanges, hand, "I" (Class XXV, Inter. 185C).....	3	35	16	39	4		1		9	1	1,524
Fracture, compound, phalanges, hand, "IR" (Class XXV, Inter. 185C).....	1			1							68

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1918—

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.
<b>INJURIES—Continued.</b>										
Fracture, compound, phalanges, hand, "I8" (Class XXV, Inter. 185C).....			1						1	
Fracture, compound, phalanges, hand, "J" (Class XXV, Inter. 185C).....		9	3	7	1				4	
Fracture, compound, phalanges, hand, "K" (Class XXV, Inter. 185C).....			1							
Fracture, compound, phalanges, hand, "L" (Class XXV, Inter. 185C).....	1	30	6	26	1		1		8	
Fracture, compound, phalanges, foot, "E" (Class XXV, Inter. 185C).....		2	2	2			1			
Fracture, compound, phalanges, foot, "G" (Class XXV, Inter. 185C).....		1		1						
Fracture, compound, phalanges, foot, "H" (Class XXV, Inter. 185C).....		3	4	1	1				4	
Fracture, compound, phalanges, foot, "I" (Class XXV, Inter. 185C).....	1	6		7						
Fracture, compound, phalanges, foot, "J" (Class XXV, Inter. 185C).....		1	1		1				1	
Fracture, compound, phalanges, foot, "L" (Class XXV, Inter. 185C).....		6	1	3	1		1		1	
Fracture, compound, radius, "G" (Class XXV, Inter. 185C).....	1	5	2	2			1		1	
Fracture, compound, radius, "H" (Class XXV, Inter. 185C).....			1	1						
Fracture, compound, radius, "J" (Class XXV, Inter. 185C).....			1						1	
Fracture, compound, radius, "K" (Class XXV, Inter. 185C).....			1						1	
Fracture, compound, radius, "L" (Class XXV, Inter. 185C).....	1	2		2					1	
Fracture, compound, radius and ulna, "G" (Class XXV, Inter. 185C).....		5	2	4	1				2	
Fracture, compound, radius and ulna, "H" (Class XXV, Inter. 185C).....		5	5	1	1		2		3	
Fracture, compound, radius and ulna, "HR" (Class XXV, Inter. 185C).....		3	1	1					3	
Fracture, compound, radius and ulna, "I" (Class XXV, Inter. 185C).....	1						1			
Fracture, compound, radius and ulna, "K" (Class XXV, Inter. 185C).....		2	8						4	
Fracture, compound, radius and ulna, "L" (Class XXV, Inter. 185C).....		3	5	1	2				4	
Fracture, compound, rib, "G" (Class XXV, Inter. 185C).....		4	1	3	1				1	
Fracture, compound, rib, "L" (Class XXV, Inter. 185C).....			1	1						
Fracture, compound, scapula, "K" (Class XXV, Inter. 185C).....			1	1						
Fracture, compound, skull, "B" (Class XXV, Inter. 185C).....		4	2	1		2			2	
Fracture, compound, skull, "F" (Class XXV, Inter. 185C).....		4				3				
Fracture, compound, skull, "FR" (Class XXV, Inter. 185C).....		1				1				
Fracture, compound, skull, "G" (Class XXV, Inter. 185C).....	2	23	21	8	3	10	4		17	
Fracture, compound, skull, "GR" (Class XXV, Inter. 185C).....		12	8	2		15			2	
Fracture, compound, skull, "H" (Class XXV, Inter. 185C).....		6		3		2				
Fracture, compound, skull, "HR" (Class XXV, Inter. 185C).....		5				5				
Fracture, compound, skull, "I" (Class XXV, Inter. 185C).....	10	3	2	1	6	1			2	

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1918—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Fracture, compound, skull, "J" (Class XXV, Inter. 185C).....		2	4	1	1	1			2	1	216
Fracture, compound, skull, "K" (Class XXV, Inter. 185C).....		3	2			1			3	1	54
Fracture, compound, skull, "L" (Class XXV, Inter. 185C).....	2	41	24	13	4	19	1		23	4	1,064
Fracture, compound, tarsal, "G" (Class XXV, Inter. 185C).....		1	1		1				1		74
Fracture, compound, tarsal, "H" (Class XXV, Inter. 185C).....		1	1						2		1
Fracture, compound, tarsal, "I" (Class XXV, Inter. 185C).....		2	4	2					3	1	363
Fracture, compound, tarsal, "J" (Class XXV, Inter. 185C).....		1		1							5
Fracture, compound, tarsal, "K" (Class XXV, Inter. 185C).....		1							1		0
Fracture, compound, tarsal, "L" (Class XXV, Inter. 185C).....		1	2						3		59
Fracture, compound, tibia, "P" (Class XXV, Inter. 185C).....		2	2						2	2	272
Fracture, compound, tibia, "Q" (Class XXV, Inter. 185C).....		5	3	2					5	1	240
Fracture, compound, tibia, "GR" (Class XXV, Inter. 185C).....			1							1	122
Fracture, compound, tibia, "H" (Class XXV, Inter. 185C).....		2	1			1			1	1	172
Fracture, compound, tibia, "HR" (Class XXV, Inter. 185C).....		1							1		0
Fracture, compound, tibia, "I" (Class XXV, Inter. 185C).....		4	11	2	2				11		511
Fracture, compound, tibia, "J" (Class XXV, Inter. 185C).....		1	1						1	1	1
Fracture, compound, tibia, "K" (Class XXV, Inter. 185C).....		2	10		2	1			7	2	374
Fracture, compound, tibia, "L" (Class XXV, Inter. 185C).....	2	9	10	4	2	1	1		9	4	1,00
Fracture, compound, tibia and fibula, "E" (Class XXV, Inter. 185C).....	1	1		1					1		19
Fracture, compound, tibia and fibula, "F" (Class XXV, Inter. 185C).....		2	5	1	3				3		231
Fracture, compound, tibia and fibula, "G" (Class XXV, Inter. 185C).....	1	5	16	3	3				10	0	1,000
Fracture, compound, tibia and fibula, "GR" (Class XXV, Inter. 185C).....		3	2	2					2	1	222
Fracture, compound, tibia and fibula, "H" (Class XXV, Inter. 185C).....		4	10	4				1	4	5	631
Fracture, compound, tibia and fibula, "HR" (Class XXV, Inter. 185C).....		1	1						1	1	81
Fracture, compound, tibia and fibula, "I" (Class XXV, Inter. 185C).....	1	14	20	4	1		1		20	9	1,771
Fracture, compound, tibia and fibula, "J" (Class XXV, Inter. 185C).....		1	1						1	1	85
Fracture, compound, tibia and fibula, "K" (Class XXV, Inter. 185C).....		3	3						5	1	172
Fracture, compound, tibia and fibula, "L" (Class XXV, Inter. 185C).....	3	14	31	10	4				21	13	2,673
Fracture, compound, tibia and fibula, "LR" (Class XXV, Inter. 185C).....	1		2	1					2		281
Fracture, compound, ulna, "E" (Class XXV, Inter. 185C).....			1							1	14
Fracture, compound, ulna, "G" (Class XXV, Inter. 185C).....		1			1						27
Fracture, compound, ulna, "H" (Class XXV, Inter. 185C).....			1		1						11
Fracture, compound, ulna, "I" (Class XXV, Inter. 185C).....		1		1							41
Fracture, compound, ulna, "K" (Class XXV, Inter. 185C).....									4	4	54
Fracture, compound, ulna, "L" (Class XXV, Inter. 185C).....		1	2						2	1	262

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1918—Co

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.
<b>INJURIES—Continued.</b>										
Fracture, compound, unqualified, "H" (Class XXV, Inter. 185C).....	1			1						
Fracture, compound unqualified, "I" (Class XXV, Inter. 185C).....	1			1						
Fracture, compound, vertebra, "G" (Class XXV, Inter. 185C).....		1	1						2	
Fracture, compound, vertebra, "K" (Class XXV, Inter. 185C).....		1	1						1	1
Fracture, simple, about ankle, "E" (Class XXV, Inter. 185C).....		1	1	1					1	
Fracture, simple, about ankle, "G" (Class XXV, Inter. 185C).....	5	35	24	26	5				28	5
Fracture, simple, about ankle, "GR" (Class XXV, Inter. 185C).....		2	1	3						
Fracture, simple, about ankle, "H" (Class XXV, Inter. 185C).....		1	1	1						1
Fracture, simple, about ankle, "I" (Class XXV, Inter. 185C).....		5	3	1	2				5	
Fracture, simple, about ankle, "IS" (Class XXV, Inter. 185C).....			1	1						
Fracture, simple, about ankle, "J" (Class XXV, Inter. 185C).....	1	12	9	13	1				8	
Fracture, simple, about ankle, "K" (Class XXV, Inter. 185C).....			2	1						1
Fracture, simple, about ankle, "L" (Class XXV, Inter. 185C).....	1	22	16	18	3				16	2
Fracture, simple, about elbow, "G" (Class XXV, Inter. 185C).....	4	17	13	9	7				15	3
Fracture, simple, about elbow, "I" (Class XXV, Inter. 185C).....		1	1		1				1	
Fracture, simple, about elbow, "J" (Class XXV, Inter. 185C).....	1	4	2	3					2	2
Fracture, simple, about elbow, "L" (Class XXV, Inter. 185C).....		9	6	6	1				7	1
Fracture, simple, carpal, "G" (Class XXV, Inter. 185C).....	3	51	25	43	5		1		27	3
Fracture, simple, carpal, "GR" (Class XXV, Inter. 185C).....		1		1						
Fracture, simple, carpal, "H" (Class XXV, Inter. 185C).....	1	6	5	5	1				4	2
Fracture, simple, carpal, "I" (Class XXV, Inter. 185C).....	1	6	2	3	1				4	1
Fracture, simple, carpal, "J" (Class XXV, Inter. 185C).....		9	5	6	1				5	2
Fracture, simple, carpal, "K" (Class XXV, Inter. 185C).....			1	1						
Fracture, simple, carpal, "L" (Class XXV, Inter. 185C).....		23	11	19	3				11	1
Fracture, simple, clavicle, "G" (Class XXV, Inter. 185C).....		2		1					1	
Fracture, simple, clavicle, "GR" (Class XXV, Inter. 185C).....	2	111	92	81	19		2	2	87	14
Fracture, simple, clavicle, "H" (Class XXV, Inter. 185C).....		2	1	1					1	1
Fracture, simple, clavicle, "I" (Class XXV, Inter. 185C).....		2	3	2	1				2	
Fracture, simple, clavicle, "J" (Class XXV, Inter. 185C).....		10	10	9	2				9	
Fracture, simple, clavicle, "K" (Class XXV, Inter. 185C).....	2	49	37	43	10		1		29	5
Fracture, simple, clavicle, "L" (Class XXV, Inter. 185C).....			1						1	
Fracture, simple, clavicle, "I" (Class XXV, Inter. 185C).....		41	33	30	10				27	7
Fracture, simple, facial, "J" (Class XXV, Inter. 185C).....		1	1	1					1	
Fracture, simple, facial, "L" (Class XXV, Inter. 185C).....	1	2	5	9					2	
Fracture, simple, femur, "E" (Class XXV, Inter. 185C).....		2	1	1			1		1	
Fracture, simple, femur, "F" (Class XXV, Inter. 185C).....		2	2						2	2
Fracture, simple, femur, "G" (Class XXV, Inter. 185C).....	7	58	78	23	16	1	4		72	27
Fracture, simple, femur, "GR" (Class XXV, Inter. 185C).....		1	1	2						
Fracture, simple, femur, "H" (Class XXV, Inter. 185C).....	1	3	5	2	1		1		4	1
Fracture, simple, femur, "I" (Class XXV, Inter. 185C).....		5	4				1		5	1



TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1918—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Fracture, simple, femur, "J" (Class XXV, Inter. 185C)		3		3							57
Fracture, simple, femur, "K" (Class XXV, Inter. 185C)		1	4						4	1	187
Fracture, simple, femur, Class XXV, Inter. 185C	6	23	25	15	9		1		22	7	2,439
Fracture, simple, fibula, "E" (Class XXV, Inter. 185C)		1							1		5
Fracture, simple, fibula, (Class XXV, Inter. 185C)	13	79	68	61	13		6		48	32	4,855
Fracture, simple, fibula, "GR" (Class XXV, Inter. 185C)		2	1	2	1						109
Fracture, simple, fibula, "H" (Class XXV, Inter. 185C)			3	3							376
Fracture, simple, fibula, "I" (Class XXV, Inter. 185C)	1	10	14	4	3		2		14	2	469
Fracture, simple, fibula, "J" (Class XXV, Inter. 185C)	4	41	38	32	2		1		32	16	2,000
Fracture, simple, fibula, "K" (Class XXV, Inter. 185C)		1	1	1	1						224
Fracture, simple, fibula, "L" (Class XXV, Inter. 185C)	6	48	35	42	6				34	7	2,363
Fracture, simple, fibula, "LR" (Class XXV, Inter. 185C)		1		1							13
Fracture, simple, hip, "G" (Class XXV, Inter. 185C)		3	6	2	1				5	1	366
Fracture, simple, hip, "I" (Class XXV, Inter. 185C)			1							1	29
Fracture, simple, hip, "J" (Class XXV, Inter. 185C)		4	1	1	1				2	1	33
Fracture, simple, humerus, "G" (Class XXV, Inter. 185C)	7	64	63	45	14		2		61	12	3,441
Fracture, simple, humerus, "H" (Class XXV, Inter. 185C)		4	4	4			1		3		164
Fracture, simple, humerus, "HR" (Class XXV, Inter. 185C)			2							2	432
Fracture, simple, humerus, "HR" (Class XXV, Inter. 185C)		1		1							55
Fracture, simple, humerus, "I" (Class XXV, Inter. 185C)		1		1							23
Fracture, simple, humerus, "J" (Class XXV, Inter. 185C)	3	18	17	20	1				16	1	922
Fracture, simple, humerus, "K" (Class XXV, Inter. 185C)		2	4	1					4	1	123
Fracture, simple, humerus, "L" (Class XXV, Inter. 185C)		25	18	17	2		5		15	4	1,400
Fracture, simple, maxilla, "G" (Class XXV, Inter. 185C)		19	15	14	2				14	4	556
Fracture, simple, maxilla, "GR" (Class XXV, Inter. 185C)		1		1							0
Fracture, simple, maxilla, "H" (Class XXV, Inter. 185C)		1	1			1			1		47
Fracture, simple, maxilla, "I" (Class XXV, Inter. 185C)		2							1	1	6
Fracture, simple, maxilla, "J" (Class XXV, Inter. 185C)		13	13	17	2				6	1	435
Fracture, simple, maxilla, "L" (Class XXV, Inter. 185C)	6	60	44	57	3				44	6	2,640
Fracture, simple, metacarpal, "E" (Class XXV, Inter. 185C)	1	1		2							21
Fracture, simple, metacarpal, "FR" (Class XXV, Inter. 185C)		1		1							11
Fracture, simple, metacarpal, "G" (Class XXV, Inter. 185C)	1	106	34	87	8				34	11	2,571
Fracture, simple, metacarpal, "H" (Class XXV, Inter. 185C)	1	23	10	22	2		1		5	4	811
Fracture, simple, metacarpal, "HR" (Class XXV, Inter. 185C)		1		1							21
Fracture, simple, metacarpal, "I" (Class XXV, Inter. 185C)	2	25	9	26	2				7	1	695
Fracture, simple, metacarpal, "J" (Class XXV, Inter. 185C)	4	148	30	137	5				36	4	3,150
Fracture, simple, metacarpal, "K" (Class XXV, Inter. 185C)		2	1	2					1		151
Fracture, simple, metacarpal, "L" (Class XXV, Inter. 185C)	12	178	65	176	13		1		49	16	1,008
Fracture, simple, metatarsal, "E" (Class XXV, Inter. 185C)		2		2							32

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1918—

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Com.
<b>INJURIES—Continued.</b>										
Fracture, simple, metatarsal, "G" (Class XXV, Inter. 185C)	3	62	58	54	7				62	
Fracture, simple, metatarsal, "GR" (Class XXV, Inter. 185C)		2	1	1					1	
Fracture, simple, metatarsal, "H" (Class XXV, Inter. 185C)		9	7	8	2				9	
Fracture, simple, metatarsal, "HR" (Class XXV, Inter. 185C)		1							1	
Fracture, simple, metatarsal, "I" (Class XXV, Inter. 185C)	3	16	30	35	7		2		28	
Fracture, simple, metatarsal, "IS" (Class XXV, Inter. 185C)		2		1					1	
Fracture, simple, metatarsal, "J" (Class XXV, Inter. 185C)	1	18	14	20	3		1		7	
Fracture, simple, metatarsal, "K" (Class XXV, Inter. 185C)		1	2	2					1	
Fracture, simple, metatarsal, "L" (Class XXV, Inter. 185C)	5	74	50	67	15		2		14	
Fracture, simple, multiple, "A" (Class XXV, Inter. 185C)		1				1				
Fracture, simple, multiple, "F" (Class XXV, Inter. 185C)		2				1	1			
Fracture, simple, multiple, "G" (Class XXV, Inter. 185C)	1	7	8	9	1		1		7	
Fracture, simple, multiple, "GR" (Class XXV, Inter. 185C)		2		2						
Fracture, simple, multiple, "H" (Class XXV, Inter. 185C)	1	2	2	1					2	
Fracture, simple, multiple, "I" (Class XXV, Inter. 185C)		1	4	2					2	
Fracture, simple, multiple, "J" (Class XXV, Inter. 185C)		1		1						
Fracture, simple, multiple, "K" (Class XXV, Inter. 185C)			1						1	
Fracture, simple, multiple, "L" (Class XXV, Inter. 185C)	1	3	4	1		1			4	
Fracture, simple, nasal, "B" (Class XXV, Inter. 185C)		1		1						
Fracture, simple, nasal, "E" (Class XXV, Inter. 185C)		1							1	
Fracture, simple, nasal, "G" (Class XXV, Inter. 185C)	1	26	13	23	5				11	
Fracture, simple, nasal, "GR" (Class XXV, Inter. 185C)		3	3	4					2	
Fracture, simple, nasal, "H" (Class XXV, Inter. 185C)		2	3	2	1				1	
Fracture, simple, nasal, "I" (Class XXV, Inter. 185C)		4	2	6						
Fracture, simple, nasal, "J" (Class XXV, Inter. 185C)	1	44	24	41	4				22	
Fracture, simple, nasal, "L" (Class XXV, Inter. 185C)	1	13	25	66	5				25	
Fracture, simple, nasal, "LR" (Class XXV, Inter. 185C)		1	1		1				1	
Fracture, simple, patella, "G" (Class XXV, Inter. 185C)	3	23	40	16	10		2		31	
Fracture, simple, patella, "J" (Class XXV, Inter. 185C)		6	4	5	2				3	
Fracture, simple, patella, "K" (Class XXV, Inter. 185C)			4						2	
Fracture, simple, patella, "L" (Class XXV, Inter. 185C)	1	13	10	8	1				12	
Fracture, simple, pelvis, "E" (Class XXV, Inter. 185C)			1						1	
Fracture, simple, pelvis, "G" (Class XXV, Inter. 185C)	2	7	8	9	1		2		3	
Fracture, simple, pelvis, "H" (Class XXV, Inter. 185C)		2	1	1		1			1	
Fracture, simple, pelvis, "I" (Class XXV, Inter. 185C)	1	5	6	3			1		4	
Fracture, simple, pelvis, "L" (Class XXV, Inter. 185C)	1	4	4	5	1				2	
Fracture, simple, phalanges, hand, "E" (Class XXV, Inter. 185C)		4		3			1			
Fracture, simple, phalanges, hand, "G" (Class XXV, Inter. 185C)	2	30	7	32					5	

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1918.—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Fracture, simple, phalanges, hand, "H" (Class XXV, Inter. 185C).....	1	27	3	24	2				5		536
Fracture, simple, phalanges, hand, "I" (Class XXV, Inter. 185C).....	1	47	4	44	2				4	2	808
Fracture, simple, phalanges, hand, "J" (Class XXV, Inter. 185C).....		52	14	50	2				12	2	822
Fracture, simple, phalanges, hand, "L" (Class XXV, Inter. 185C).....	2	82	12	75	4		1		12	4	1,533
Fracture, simple, phalanges, foot, "E" (Class XXV, Inter. 185C).....			1							1	66
Fracture, simple, phalanges, foot, "G" (Class XXV, Inter. 185C).....	1	14	1	14					2		164
Fracture, simple, phalanges, foot, "H" (Class XXV, Inter. 185C).....		4	2	4					1	1	99
Fracture, simple, phalanges, foot, "I" (Class XXV, Inter. 185C).....	2	53	20	48	2				20	5	1,543
Fracture, simple, phalanges, foot, "J" (Class XXV, Inter. 185C).....		6	3	5	2				2		80
Fracture, simple, phalanges, foot, "L" (Class XXV, Inter. 185C).....	4	67	20	68	7				13	3	2,010
Fracture, simple, radius, "G" (Class XXV, Inter. 185C).....	10	159	119	139	23		2		98	26	6,002
Fracture, simple, radius, "GR" (Class XXV, Inter. 185C).....		2		1					1		42
Fracture, simple, radius, "H" (Class XXV, Inter. 185C).....	6	43	18	36	3		2		20	6	1,472
Fracture, simple, radius, "HR" (Class XXV, Inter. 185C).....		1		1							11
Fracture, simple, radius, "HS" (Class XXV, Inter. 185C).....		2		1					1		33
Fracture, simple, radius, "I" (Class XXV, Inter. 185C).....	10	7	7	7	3		1		5	1	430
Fracture, simple, radius, "J" (Class XXV, Inter. 185C).....	2	43	24	44	3				16	6	1,938
Fracture, simple, radius, "K" (Class XXV, Inter. 185C).....		2	2	4							108
Fracture, simple, radius, "L" (Class XXV, Inter. 185C).....	9	83	47	75	8		1		44	11	3,190
Fracture, simple, radius and ulna, "E" (Class XXV, Inter. 185C).....		1	1		1				1		12
Fracture, simple, radius, and ulna, "G" (Class XXV, Inter. 185C).....	1	57	41	33	9		2		40	15	3,046
Fracture, simple, radius and ulna, "GR" (Class XXV, Inter. 185C).....		1	1						2		50
Fracture, simple, radius and ulna, "H" (Class XXV, Inter. 185C).....	1	15	5	10	1		1		6	3	515
Fracture, simple, radius and ulna, "HR" (Class XXV, Inter. 185C).....		1	4	1					2	2	135
Fracture, simple, radius and ulna, "I" (Class XXV, Inter. 185C).....	2	7	3	5	3		1		3		433
Fracture, simple, radius and ulna, "J" (Class XXV, Inter. 185C).....	1	13	9	13	1				7	2	540
Fracture, simple, radius and ulna, "K" (Class XXV, Inter. 185C).....			2	1					1		130
Fracture, simple, radius and ulna, "L" (Class XXV, Inter. 185C).....	2	23	15	17	4				14	5	1,209
Fracture, simple, rib, "P" (Class XXV, Inter. 185C).....			1	1							26
Fracture, simple, rib, "Q" (Class XXV, Inter. 185C).....	4	95	32	89	13			1	26	2	1,584
Fracture, simple, rib, "GR" (Class XXV, Inter. 185C).....		5	3	5	1				2		94
Fracture, simple, rib, "H" (Class XXV, Inter. 185C).....	4		1	4					1		67

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1918.—

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Co.
<b>INJURIES—Continued.</b>										
Fracture, simple, rib, "HR" (Class XXV, Inter. 185C).....			1	1						
Fracture, simple, rib, "GS" (Class XXV, Inter. 185C).....	1			1						
Fracture, simple, rib, "I" (Class XXV, Inter. 185C).....	9	3		8					4	
Fracture, simple, rib, "J" (Class XXV, Inter. 185C).....	42	8		37	4				8	
Fracture, simple, rib, "K" (Class XXV, Inter. 185C).....	1	2		2					1	
Fracture, simple, rib, "L" (Class XXV, Inter. 185C).....	36	22		34	7				11	
Fracture, simple, scapula, "F" (Class XXV, Inter. 185C).....	1	1		1	1					
Fracture, simple, scapula, "G" (Class XXV, Inter. 185C).....	1	11	11	13	3				6	
Fracture, simple, scapula, "J" (Class XXV, Inter. 185C).....	7	3		2	3				5	
Fracture, simple, scapula, "L" (Class XXV, Inter. 185C).....	2	5		4	1				1	
Fracture, simple, shoulder, "E" (Class XXV, Inter. 185C).....			1	1						
Fracture, simple, shoulder, "G" (Class XXV, Inter. 185C).....	4	2		2					3	
Fracture, simple, shoulder, "H" (Class XXV, Inter. 185C).....	1			1						
Fracture, simple, shoulder, "J" (Class XXV, Inter. 185C).....	3	3		2	1				3	
Fracture, simple, shoulder, "L" (Class XXV, Inter. 185C).....			2	1	1					
Fracture, simple, skull, "B" (Class XXV, Inter. 185C).....	1					1				
Fracture, simple, skull, "F" (Class XXV, Inter. 185C).....	1	1		2						
Fracture, simple, skull, "G" (Class XXV, Inter. 185C).....	7	37	30	16	10	12	2		31	
Fracture, simple, skull, "GR" (Class XXV, Inter. 185C).....	4	2				4			1	
Fracture, simple, skull, "H" (Class XXV, Inter. 185C).....	4	1		2		3				
Fracture, simple, skull, "HR" (Class XXV, Inter. 185C).....	2					2				
Fracture, simple, skull, "I" (Class XXV, Inter. 185C).....	3	1		1					1	
Fracture, simple, skull, "J" (Class XXV, Inter. 185C).....	8	6	6	3	1	1			3	
Fracture, simple, skull, "L" (Class XXV, Inter. 185C).....	4	40	28	22	8	11	4		22	
Fracture, simple, tibia, "G" (Class XXV, Inter. 185C).....	7	57	61	34	12		2		57	
Fracture, simple, tibia, "GR" (Class XXV, Inter. 185C).....			1						1	
Fracture, simple, tibia, "H" (Class XXV, Inter. 185C).....	2	5	6	5	1				5	
Fracture, simple, tibia, "I" (Class XXV, Inter. 185C).....	2	15	16	15	2				11	
Fracture, simple, tibia, "J" (Class XXV, Inter. 185C).....	3	27	23	25	3				16	
Fracture, simple, tibia, "K" (Class XXV, Inter. 185C).....	2	3					1		3	
Fracture, simple, tibia, "L" (Class XXV, Inter. 185C).....	6	38	47	38	6	2			35	
Fracture, simple, tibia and fibula, "E" (Class XXV, Inter. 185C).....		1	1						1	
Fracture, simple, tibia and fibula, "G" (Class XXV, Inter. 185C).....	5	28	54	34	8		1		35	
Fracture, simple, tibia and fibula "GR" (Class XXV, Inter. 185C).....	4	3		2					3	
Fracture, simple, tibia and fibula, "H" (Class XXV, Inter. 185C).....	1	6	7	2	1				7	
Fracture, simple, tibia and fibula "I" (Class XXV, Inter. 185C).....	4	15	13	12	2				14	
Fracture, simple, tibia and fibula "J" (Class XXV, Inter. 185C).....	2	17	19	16	2		1		15	
Fracture, simple, tibia and fibula "K" (Class XXV, Inter. 185C).....			1						1	
Fracture, simple, tibia and fibula "L" (Class XXV, Inter. 185C).....	3	23	19	15	2				20	
Fracture, simple, ulna, "B" (Class XXV, Inter. 185C).....		1							1	

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1918—Contd.

Diagnoses.	Rem.	A.	RA.	D.	G.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Fracture, simple, ulna "E" (Class XXV, Inter. 185C)		1	1	2							56
Fracture, simple, ulna "G" (Class XXV, Inter. 185C)	2	50	39	34	7		1		38	11	1,955
Fracture, simple, ulna "H" (Class XXV, Inter. 185C)		4	3	5					1	1	151
Fracture, simple, ulna "I" (Class XXV, Inter. 185C)	3	2	1	4	1				1		454
Fracture, simple, ulna "J" (Class XXV, Inter. 185C)	2	14	9	15	3				7		620
Fracture, simple, ulna "K" (Class XXV, Inter. 185C)	2	24	16	27	2				7	6	746
Fracture, simple, unqualified "G" (Class XXV, Inter. 185C)	3	4	7	7	2				5		289
Fracture, simple, unqualified "H" (Class XXV, Inter. 185C)		4		2	1				1		101
Fracture, simple, unqualified "I" (Class XXV, Inter. 185C)		2	2		2				2		98
Fracture, simple, unqualified "J" (Class XXV, Inter. 185C)	1	3		2	1				1		67
Fracture, simple, unqualified "L" (Class XXV, Inter. 185C)	3	4	3	7	1				2		183
Fracture, simple, upper extremity "F" (Class XXV, Inter. 185C)			1							1	87
Fracture, simple, upper extremity "G" (Class XXV, Inter. 185C)		2	8	2	1				6	1	177
Fracture, simple, upper extremity "I" (Class XXV, Inter. 185C)			1	1							88
Fracture, simple, upper extremity "L" (Class XXV, Inter. 185C)			1		1						42
Fracture, simple, vertebra "E" (Class XXV, Inter. 185C)		1		1							3
Fracture, simple, vertebra "G" (Class XXV, Inter. 185C)	7	33	28	14	11	7	2		26	9	1,653
Fracture, simple, vertebra "GR" (Class XXV, Inter. 185C)		3	5	3		2			3		209
Fracture, simple, vertebra "H" (Class XXV, Inter. 185C)		1					1				10
Fracture, simple, vertebra "I" (Class XXV, Inter. 185C)	1	4	2	1	3		1		2		268
Fracture, simple, vertebra "J" (Class XXV, Inter. 185C)	4	11	6	2	2	6	2		9		475
Fracture, simple, vertebra "L" (Class XXV, Inter. 185C)	2	20	15	9	4	2	4		13	5	663
Fracture, simple, vertebra "LR" (Class XXV, Inter. 185C)		2	3		2				2	1	23
Fracture of penis "L" (Class XXV, Inter. 186)		1		1							4
Frostbite, ears "L" (Class XXV, Inter. 178)	1	2		3							6
Frostbite, fingers "L" (Class XXV, Inter. 178)	1	5	3	6			1		2		79
Frostbite, foot "K" (Class XXV, Inter. 178)			3		1				1	1	9
Frostbite, foot "L" (Class XXV, Inter. 178)	2	16	6	12	2		2		6	2	169
Frostbite, hand "L" (Class XXV, Inter. 178)	1	4		5							65
Frostbite, multiple "L" (Class XXV, Inter. 178)	1	1	4	3			1		2		48
Frostbite, toes "L" (Class XXV, Inter. 178)	1	5	4	8			1		1		244
Frostbite, unqualified "L" (Class XXV, Inter. 178)	1	2		2					1		2
Heat cramps, "C" (Class XXV, Inter. 179A)		1		1							4
Heat cramps, "L" (Class XXV, Inter. 179A)		115		114					1		267
Hematoma tunica vaginalis, traumatic, "G" (Class XXV, Inter. 127)		2		2							14
Hematoma tunica vaginalis, traumatic, "L" (Class XXV, Inter. 127)		2		2							20
Hematoma, traumatic, abdomen, "G" (Class XXV, Inter. 186)		2		2							26

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1918—Cont.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	L.
<b>INJURIES—Continued.</b>											
Hematoma, traumatic, abdomen, "J" (Class XXV, Inter. 186).....		1	2			1			1		
Hematoma, traumatic, abdomen, "L" (Class XXV, Inter. 187).....		1	1						1		
Hematoma, traumatic, arm, "J" (Class XXV, Inter. 183).....		1		1							
Hematoma, traumatic, arm, "L" (Class XXV, Inter. 183).....		1		1							
Hematoma, traumatic, back, "L" (Class XXV, Inter. 183).....		1		1							
Hematoma, traumatic, bladder, "J" (Class XXV, Inter. 183).....		1							1		
Hematoma, traumatic, ear, "E" (Class XXV, Inter. 186).....		1		1							
Hematoma, traumatic, ear, "J" (Class XXV, Inter. 183).....		1	1	2							
Hematoma, traumatic, ear, "L" (Class XXV, Inter. 183).....		1	1	1					1		
Hematoma, traumatic, eye, "GR" (Class XXV, Inter. 186).....		1		1							
Hematoma, traumatic, eye, "J" (Class XXV, Inter. 183).....		1		1							
Hematoma, traumatic, eye, "L" (Class XXV, Inter. 183).....		1		1							
Hematoma, traumatic, finger, "L" (Class XXV, Inter. 183).....		1		1							
Hematoma, traumatic, head, "J" (Class XXV, Inter. 183).....		2	1	2					1		
Hematoma, traumatic, head, "L" (Class XXV, Inter. 183).....		3	1	3					1		
Hematoma, traumatic, heart, "J" (Class XXV, Inter. 183).....		1							1		
Hematoma, traumatic, hip, "G" (Class XXV, Inter. 183).....		1		1							
Hematoma, traumatic, hip, "I" (Class XXV, Inter. 183).....			1	1							
Hematoma, traumatic, intestine, "I" (Class XXV, Inter. 183).....			1				1				
Hematoma, traumatic, knee, "G" (Class XXV, Inter. 183).....		1		1							
Hematoma, traumatic, knee, "L" (Class XXV, Inter. 183).....		2	2	2	1				1		
Hematoma, traumatic, leg, "G" (Class XXV, Inter. 183).....		5	2	3	2				2		
Hematoma, traumatic, leg, "I" (Class XXV, Inter. 183).....		1		1							
Hematoma, traumatic, leg, "J" (Class XXV, Inter. 186).....		2		2							
Hematoma, traumatic, leg, "L" (Class XXV, Inter. 183).....		1	2	1	1						
Hematoma, traumatic, neck, "L" (Class XXV, Inter. 186).....		1		1							
Hematoma, traumatic, nose, "L" (Class XXV, Inter. 183).....		1		1							
Hematoma, traumatic, pelvis, "I" (Class XXV, Inter. 186).....	1	1			1				1		
Hematoma, traumatic, penis, "G" (Class XXV, Inter. 183).....		1		1							
Hematoma, traumatic, penis, "L" (Class XXV, Inter. 186).....			2	1	1						
Hematoma, traumatic, rectum, "J" (Class XXV, Inter. 186).....		1							1		
Hematoma, traumatic, testicle, "G" (Class XXV, Inter. 183).....		1		1							
Hematoma, traumatic, testicle, "J" (Class XXV, Inter. 183).....		1									
Hematoma, traumatic, testicle, "L" (Class XXV, Inter. 183).....		4	1	3	1				1		
Hematoma, traumatic, thigh, "G" (Class XXV, Inter. 183).....		5		5							
Hematoma, traumatic, thigh, "J" (Class XXV, Inter. 183).....		2	1	2					1		
Hematoma, traumatic, thigh, "L" (Class XXV, Inter. 183).....		1	1	2							
Hematoma, traumatic, toe, "I" (Class XXV, Inter. 183).....		2		2							
Hematoma, traumatic, unqualified, "J" (Class XXV, Inter. 186).....			2	1	1						
Hematoma, traumatic, upper extremity, "J" (Class XXV, Inter. 186).....		1		1							



TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1918—Contd.

Diagnosis.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
anatomy, traumatic, upper extremity, "L" (Class XXV, Inter. 186)		1							1		6
hemorrhage into eyeball, traumatic, "E" (Class XXV, Inter. 186)		1	1	1					1		2
hemorrhage into eyeball, traumatic, "G" (Class XXV, Inter. 186)		3	2	1	1				2		14
hemorrhage into eyeball, traumatic, "GR" (Class XXV, Inter. 186)		1		1							3
hemorrhage into eyeball, traumatic, "J" (Class XXV, Inter. 186)		2	2	2	1				1		13
hemorrhage into eyeball, traumatic, "L" (Class XXV, Inter. 186)	1	12	10	13					10		336
hemorrhage into wrist joint, "J" (Class XXV, Inter. 186)		1		1							6
hemorrhage under conjunctiva, traumatic, "F" (Class XXV, Inter. 186)		3	1	3					1		3
hemorrhage under conjunctiva, traumatic, "G" (Class XXV, Inter. 186)		3		3							25
hemorrhage under conjunctiva, traumatic, "J" (Class XXV, Inter. 186)		3		3							7
hemorrhage under conjunctiva, traumatic, "L" (Class XXV, Inter. 186)		12	1	11					2		55
intracranial injury, "C" (Class XXV, Inter. 186)		1				1					6
intracranial injury, "F" (Class XXV, Inter. 186)		1	1	2							23
intracranial injury, "G" (Class XXV, Inter. 186)	3	47	50	36	8	3	9		20	5	1,636
intracranial injury, "GR" (Class XXV, Inter. 186)		3				3					6
intracranial injury, "H" (Class XXV, Inter. 186)		5		4		1					19
intracranial injury, "HR" (Class XXV, Inter. 186)		1				1					6
intracranial injury, "I" (Class XXV, Inter. 186)	1	3	3	3	1	1			2		45
intracranial injury, "J" (Class XXV, Inter. 186)		17	14	15	2	2	1		10	1	304
intracranial injury, "K" (Class XXV, Inter. 186)		157	178	128	14	3		2	176	12	7,122
intracranial injury, "L" (Class XXV, Inter. 186)	4	29	30	18	7	2	10	1	20	5	1,211
intracranial injury, "Q" (Class XXV, Inter. 186)		6	7	5	4				2	1	171
intracranial injury, "GR" (Class XXV, Inter. 186)		1				1					1
intracranial injury, "I" (Class XXV, Inter. 186)		1	1				1		1		67
intracranial injury, "K" (Class XXV, Inter. 186)		1	3	2					2		66
intracranial injury, "L" (Class XXV, Inter. 186)		4	4	2	2		1		3		90
Lightning stroke, "L" (Class XXV, Inter. 186)		3	2	3		1			1		15
Multiple injuries, extreme, "A" (Class XXV, Inter. 186)		2		1		1					7
Multiple injuries, extreme, "E" (Class XXV, Inter. 186)		4				4					2
Multiple injuries, extreme, "F" (Class XXV, Inter. 186)		46	2	1		42			5		390
Multiple injuries, extreme, "FR" (Class XXV, Inter. 186)		3				3					6
Multiple injuries, extreme, "FS" (Class XXV, Inter. 186)		2	1			1			2		9
Multiple injuries, extreme, "G" (Class XXV, Inter. 186)	2	19	12	8	2	6	3		12	2	564
Multiple injuries, extreme, "GR" (Class XXV, Inter. 186)		25	5	7		15			7	1	346
Multiple injuries, extreme, "H" (Class XXV, Inter. 186)	1	8	7	4	1	5	2		4		361
Multiple injuries, extreme, "HR" (Class XXV, Inter. 186)		2	2	2	1	2					51

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1918—

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Con.
<b>INJURIES—Continued.</b>										
Multiple injuries, extreme, "I" (Class XXV, Inter. 186).....		13	1	1		12			1	
Multiple injuries, extreme, "K" (Class XXV, Inter. 186).....		1	1			1			1	
Multiple injuries, extreme, "L" (Class XXV, Inter. 186).....		40	9	5		31			9	
Rupture, traumatic, abdominal, "F" (Class XXV, Inter. 186).....		1				1				
Rupture, traumatic, abdominal, "G" (Class XXV, Inter. 186).....		1	1	1		1				
Rupture, traumatic, abdominal, "L" (Class XXV, Inter. 186).....		2							2	
Rupture, traumatic, bladder, "G" (Class XXV, Inter. 186).....		1								
Rupture, traumatic, cartilage, knee, "I" (Class XXV, Inter. 186).....		1							1	
Rupture, traumatic, cartilage, knee, "J" (Class XXV, Inter. 186).....		3		2			1			
Rupture, traumatic, cartilage, knee, "L" (Class XXV, Inter. 186).....		1	4						4	
Rupture, traumatic, globe, eye, "E" (Class XXV, Inter. 186).....		1							1	
Rupture, traumatic, globe, eye, "F" (Class XXV, Inter. 186).....			1							
Rupture, traumatic, globe, eye, "Y" (Class XXV, Inter. 186).....		1	2		1				1	
Rupture, traumatic, globe, eye, "L" (Class XXV, Inter. 186).....		4	2	2					4	
Rupture, traumatic, heart, "GR" (Class XXV, Inter. 186).....		1				1				
Rupture, traumatic, intestine, "L" (Class XXV, Inter. 186).....		1				1				
Rupture, traumatic, kidney, "G" (Class XXV, Inter. 186).....	1	2	1	1	1				1	
Rupture, traumatic, kidney, "GR" (Class XXV, Inter. 186).....		1				1				
Rupture, traumatic, kidney, "L" (Class XXV, Inter. 186).....			1							
Rupture, traumatic, ligament, finger, "L" (Class XXV, Inter. 186).....		1	1	1					1	
Rupture, traumatic, ligament, foot, "G" (Class XXV, Inter. 186).....		1		1						
Rupture, traumatic, ligament, foot, "J" (Class XXV, Inter. 186).....		2	2	3					1	
Rupture, traumatic, ligament, hand, "L" (Class XXV, Inter. 186).....		1	2	1	1				1	
Rupture, traumatic, ligament, unqualified, "G" (Class XXV, Inter. 186).....		1	1	1	1					
Rupture, traumatic, ligament, unqualified, "H" (Class XXV, Inter. 186).....		1	2						2	
Rupture, traumatic, ligament, unqualified, "J" (Class XXV, Inter. 186).....			1	1						
Rupture, traumatic, ligament, unqualified, "L" (Class XXV, Inter. 186).....		2	3	3			1		1	
Rupture, traumatic, liver, "G" (Class XXV, Inter. 186).....		1	1		1	1				
Rupture, traumatic, lung, "GR" (Class XXV, Inter. 186).....		2								
Rupture, traumatic, lung, "J" (Class XXV, Inter. 186).....		1		1						
Rupture, traumatic, lung, "L" (Class XXV, Inter. 186).....		1				1				
Rupture, traumatic, muscle, arm, "K" (Class XXV, Inter. 186).....			1						1	
Rupture, traumatic, muscle, arm, "L" (Class XXV, Inter. 186).....		1		1						
Rupture, traumatic, muscle, leg, "I" (Class XXV, Inter. 186).....			2						2	
Rupture, traumatic, muscle, leg, "L" (Class XXV, Inter. 186).....		1	1	2						



L.—Detailed statement of diseases and injuries for the calendar year 1918—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
...e, traumatic, muscle, "G" (Class XXV, Inter.		1		1							37
...e, traumatic, muscle, unqualified, "I" (Class XXV, Inter. 185B)		1							1		0
...e, traumatic, muscle, unqualified, "J" (Class XXV, Inter. 185B)		1					1				18
...e, traumatic, muscle, unqualified, "L" (Class XXV, Inter. 185B)	1	3	6	2	1		4		2	1	343
...e, traumatic, perineum, (Class XXV, Inter. 186)		1								1	21
...e, traumatic, prostate, (Class XXV, Inter. 186)		1							1		0
...e, traumatic, spleen, "G" (Class XXV, Inter. 186)		2	2		1				2	1	50
...e, traumatic, spleen, "I" (Class XXV, Inter. 186)		1			1						0
...e, traumatic, spleen, "L" (Class XXV, Inter. 186)		1			1						0
...e, traumatic, tympanum, (Class XXV, Inter. 186)		12	3	11					3	1	109
...e, traumatic, tympanum, (Class XXV, Inter. 186)		6	3	6					2	1	98
...e, traumatic, tympanum, (Class XXV, Inter. 186)		2		1						1	18
...e, traumatic, tympanum, (Class XXV, Inter. 186)		1		1							13
...e, traumatic, tympanum, (Class XXV, Inter. 186)		9	3	8					3	1	104
...e, traumatic, tympanum, (Class XXV, Inter. 186)		18	2	15					4	1	45
...e, traumatic, tympanum, (Class XXV, Inter. 186)		10	2	11					1		44
...e, traumatic, unqualified, (Class XXV, Inter. 186)		1			1						8
...e, traumatic, unqualified, (Class XXV, Inter. 186)			1	1							21
...e, traumatic, unqualified, (Class XXV, Inter. 186)		3	1	3					1		28
...e, traumatic, urethra, (Class XXV, Inter. 186)		4	8	4	3				4	1	149
...e, traumatic, urethra, "I" (Class XXV, Inter. 186)	1			1							49
...e, traumatic, urethra, (Class XXV, Inter. 186)	1	2	1		1				2	1	25
...e, inhalation, "C" (Class Inter. 168B)		16	13	15			2		12		69
...e, inhalation, "F" (Class Inter. 168B)		2	2						2	2	44
...e, inhalation, "K" (Class Inter. 168B)		56	29	25					55	5	1,259
...e, inhalation, "L" (Class Inter. 168B)		4		3			1				4
...e, ankle, "F" (Class XXV, Inter. 185B)		5		4					1		17
...e, ankle, "G" (Class XXV, Inter. 185B)	15	878	205	844	49		4		158	43	10,403
...e, ankle, "GR" (Class Inter. 185B)		6	2	4	1				2	1	61
...e, ankle, "GS" (Class Inter. 185B)		1		1							8
...e, ankle, "H" (Class XXV, Inter. 185B)		19	2	19					2		122
...e, ankle, "HR" (Class Inter. 185B)		1		1							10
...e, ankle, "I" (Class XXV, Inter. 185B)	1	38	4	37	3				2	1	355
...e, ankle, "J" (Class XXV, Inter. 185B)	3	401	71	389	23		1		57	5	3,953
...e, ankle, "K" (Class XXV, Inter. 185B)		21	53	42					25	7	1,980
...e, ankle, "L" (Class XXV, Inter. 185B)	9	634	255	612	81		5		170	30	10,536
...e, ankle, "LR" (Class Inter. 185B)		2	1	2					1		91
...e, ankle, "LS" (Class Inter. 185B)		2		2							8
...e, elbow, "G" (Class XXV, Inter. 185B)	2	52	19	52	7				10	4	596

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1918—Cont.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	D.
<b>INJURIES—Continued.</b>											
Sprain, elbow, "J" (Class XXV, Inter. 185B)		23	6	21	1				5	2	
Sprain, elbow, "L" (Class XXV, Inter. 185B)	2	32	1	32	1				2		
Sprain, hip, "F" (Class XXV, Inter. 185B)		1	1				1		1		
Sprain, hip, "G" (Class XXV, Inter. 185B)		32	22	20	9		10		11	4	
Sprain, hip, "GR" (Class XXV, Inter. 185B)		1	1	1					1		
Sprain, hip, "H" (Class XXV, Inter. 185B)		1							1		
Sprain, hip, "I" (Class XXV, Inter. 185B)		2	1	2					1		
Sprain, hip, "J" (Class XXV, Inter. 185B)		9		7	2		6		5	1	
Sprain, hip, "K" (Class XXV, Inter. 185B)		1	5	4					2		
Sprain, hip, "L" (Class XXV, Inter. 185B)		45	38	24	9		15		25	10	
Sprain, knee, "G" (Class XXV, Inter. 185B)	3	263	75	248	17		7		61	8	
Sprain, knee, "GR" (Class XXV, Inter. 185B)		3	1	3					1		
Sprain, knee, "H" (Class XXV, Inter. 185B)		1	1	1	1						
Sprain, knee, "I" (Class XXV, Inter. 185B)		7	3	8					1	1	
Sprain, knee, "J" (Class XXV, Inter. 185B)	2	205	80	207	14		4		52	10	
Sprain, knee, "K" (Class XXV, Inter. 185B)		3	11	10	1				2	1	
Sprain, knee, "L" (Class XXV, Inter. 185B)	1	175	77	166	21		2		50	11	
Sprain, maxilla, "L" (Class XXV, Inter. 185B)			1	1							
Sprain, metacarpal, "G" (Class XXV, Inter. 185B)		16	2	15	2					1	
Sprain, metacarpal, "H" (Class XXV, Inter. 185B)		2	1	1	1				1		
Sprain, metacarpal, "I" (Class XXV, Inter. 185B)		1		1							
Sprain, metacarpal, "J" (Class XXV, Inter. 185B)		20	2	16	2				1		
Sprain, metacarpal, "L" (Class XXV, Inter. 185B)		17		17							
Sprain, metatarsal, "G" (Class XXV, Inter. 185B)		28	6	27	4				3		
Sprain, metatarsal, "H" (Class XXV, Inter. 185B)		1		1							
Sprain, metatarsal, "I" (Class XXV, Inter. 185B)		7	1	6					2		
Sprain, metatarsal, "J" (Class XXV, Inter. 185B)		13	3	12	1				3		
Sprain, metatarsal, "K" (Class XXV, Inter. 185B)		1	2	3							
Sprain, metatarsal, "L" (Class XXV, Inter. 185B)	1	24	17	33	1				5	3	
Sprain, multiple, "F" (Class XXV, Inter. 185B)			1							1	
Sprain, multiple, "G" (Class XXV, Inter. 185B)		5	2	6	1						
Sprain, pelvis, "G" (Class XXV, Inter. 185B)		9	5	7					5	2	
Sprain, pelvis, "GR" (Class XXV, Inter. 185B)		1							1		
Sprain, pelvis, "H" (Class XXV, Inter. 185B)		1	1	1					1		
Sprain, pelvis, "J" (Class XXV, Inter. 185B)		1		1							
Sprain, pelvis, "L" (Class XXV, Inter. 185B)	2	8	3	6	1				6		
Sprain, phalanges, foot, "C" (Class XXV, Inter. 185B)		1		1							
Sprain, phalanges, foot, "G" (Class XXV, Inter. 185B)		4		3						1	
Sprain, phalanges, foot, "I" (Class XXV, Inter. 185B)		1	2	2					1		
Sprain, phalanges, foot, "J" (Class XXV, Inter. 185B)		6		6							
Sprain, phalanges, foot, "L" (Class XXV, Inter. 185B)		11	5	16							

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1918—Contd.

Diagnosis.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
n, phalanges, hand, "F" (Class XXV, Inter. 185B)		1		1							4
n, phalanges, hand, "G" (Class XXV, Inter. 185B)		21		20	1						100
n, phalanges, hand, "H" (Class XXV, Inter. 185B)		2		1	1						9
n, phalanges, hand, "I" (Class XXV, Inter. 185B)		1	1	1	1						8
n, phalanges, hand, "J" (Class XXV, Inter. 185B)		35	3	34					3	1	179
n, phalanges, hand, "L" (Class XXV, Inter. 185B)		33	2	34						1	147
n, shoulder, "G" (Class CV, Inter. 185B)	2	50	5	47	2		1		7		426
n, shoulder, "H" (Class CV, Inter. 185B)		2		2							19
n, shoulder, "I" (Class CV, Inter. 185B)		1		1							2
n, shoulder, "J" (Class CV, Inter. 185B)	1	41	4	38	1				5	2	333
n, shoulder, "K" (Class CV, Inter. 185B)		2	2	1					2	1	182
n, shoulder, "L" (Class CV, Inter. 185B)	2	39	11	41	2				6	3	484
n, unqualified, "G" (Class CV, Inter. 185B)	2	4		6							31
n, unqualified, "J" (Class CV, Inter. 185B)		4	2	3	1				2		27
n, unqualified, "L" (Class CV, Inter. 185B)		12	3	11	1				3		222
n, vertebral, "F" (Class CV, Inter. 185B)		1							1		30
n, vertebral, "G" (Class CV, Inter. 185B)	1	64	45	56	14		1		31	8	1,751
n, vertebral, "GR" (Class CV, Inter. 185B)	2	1	1	1				1			9
n, vertebral, "H" (Class CV, Inter. 185B)		5	4	3	3				4		156
n, vertebral, "HR" (Class CV, Inter. 185B)		1		1							65
n, vertebral, "I" (Class CV, Inter. 185B)		2	2	3	1						41
n, vertebral, "J" (Class CV, Inter. 185B)	1	10	5	9	1		1		4	1	169
n, vertebral, "K" (Class CV, Inter. 185B)		3	3	5	1				3	2	193
n, vertebral, "L" (Class CV, Inter. 185B)	3	125	59	95	23		2		59	8	3,337
n, wrist, "G" (Class XXV, Inter. 185B)	5	158	29	155	20				16	1	1,497
n, wrist, "H" (Class XXV, Inter. 185B)		14	2	14	1		1				141
n, wrist, "HR" (Class CV, Inter. 185B)		1							1		0
n, wrist, "I" (Class XXV, Inter. 185B)		6	3	7	1				1		119
n, wrist, "J" (Class XXV, Inter. 185B)	1	53	8	52	4			1	4	1	507
n, wrist, "K" (Class XXV, Inter. 185B)		1	2	1					1	1	118
n, wrist, "L" (Class XXV, Inter. 185B)	5	100	10	101	3				10	1	760
n, abdominal, "G" (Class CV, Inter. 185B)		22	6	20	1				7		182
n, abdominal, "H" (Class CV, Inter. 185B)			1	1							14
n, abdominal, "I" (Class CV, Inter. 185B)		1	1	1					1		21
n, abdominal, "J" (Class CV, Inter. 185B)		9	2	9					2		62
n, abdominal, "K" (Class CV, Inter. 185B)			1	1							6
n, abdominal, "L" (Class CV, Inter. 185B)		64	20	62	1				17	4	664
n, ankle, "G" (Class XXV, Inter. 185B)		10	1	10	1						93
n, ankle, "J" (Class XXV, Inter. 185B)		8		4					1		19
n, ankle, "L" (Class XXV, Inter. 185B)		10		9					1		48
n, arm, "G" (Class XXV, Inter. 185B)		5		4					1		5



TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1918—

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Con.
<b>INJURIES—Continued.</b>										
Strain, arm, "J" (Class XXV, Inter. 183)		4	1	5						
Strain, arm, "L" (Class XXV, Inter. 183)		2		2						
Strain, back, "G" (Class XXV, Inter. 183)	1	77	26	72	8		3		17	
Strain, back, "GR" (Class XXV, Inter. 183)		4		4						
Strain, back, "H" (Class XXV, Inter. 183)		6	3	4	2				2	
Strain, back, "I" (Class XXV, Inter. 183)		4	4	4					3	
Strain, back, "J" (Class XXV, Inter. 183)		31	8	32	2		1		4	
Strain, back, "K" (Class XXV, Inter. 183)		4	10	10					4	
Strain, back, "L" (Class XXV, Inter. 183)		279	99	261	38		10		56	
Strain, chest, "G" (Class XXV, Inter. 183)	1	1		2						
Strain, chest, "J" (Class XXV, Inter. 183)		6	2	6	1				1	
Strain, chest, "L" (Class XXV, Inter. 183)		11	4	12	1				2	
Strain, elbow, "G" (Class XXV, Inter. 183)		1		1						
Strain, elbow, "J" (Class XXV, Inter. 183)		1		1						
Strain, eve, "L" (Class XXV, Inter. 183)		2	2	2					1	
Strain, finger, "L" (Class XXV, Inter. 183)		1		1						
Strain, foot, "G" (Class XXV, Inter. 183)		1	2	2					1	
Strain, foot, "I" (Class XXV, Inter. 183)		1		1						
Strain, foot, "J" (Class XXV, Inter. 183)		3		3						
Strain, foot, "K" (Class XXV, Inter. 183)		1		1						
Strain, foot, "L" (Class XXV, Inter. 183)		15	7	16	1				3	
Strain, forearm, "G" (Class XXV, Inter. 183)		2	1	1					1	
Strain, forearm, "H" (Class XXV, Inter. 183)		1		1						
Strain, forearm, "J" (Class XXV, Inter. 183)		2		2						
Strain, forearm, "L" (Class XXV, Inter. 183)		3		3						
Strain, gluteal, "G" (Class XXV, Inter. 183)		2	1	1	1				1	
Strain, gluteal, "L" (Class XXV, Inter. 183)	1	1		2						
Strain, hand, "L" (Class XXV, Inter. 183)		1		1						
Strain, hip, "G" (Class XXV, Inter. 183)		5	5	6	2				1	
Strain, hip, "J" (Class XXV, Inter. 183)		2	1	3						
Strain, hip, "K" (Class XXV, Inter. 183)			1	1						
Strain, hip, "L" (Class XXV, Inter. 183)		5	6	8	1				1	
Strain, knee, "G" (Class XXV, Inter. 183)		5		4	1					
Strain, knee, "J" (Class XXV, Inter. 183)		7		6					1	
Strain, knee, "L" (Class XXV, Inter. 183)		3	3	5					1	
Strain, leg, "G" (Class XXV, Inter. 183)	1	13	1	14					1	
Strain, leg, "J" (Class XXV, Inter. 183)		8	1	9						
Strain, leg, "L" (Class XXV, Inter. 183)		18	5	17	1				4	
Strain, neck, "G" (Class XXV, Inter. 183)		1		1						
Strain, neck, "I" (Class XXV, Inter. 183)		1		1						
Strain, neck, "J" (Class XXV, Inter. 183)		6	2	5	2				2	

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1918—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IB.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
in, neck, "L" (Class XXV, Inter. 186)		11	2	10	2				1		106
in, shoulder, "G" (Class XXV, Inter. 186)		7	2	8	1						66
in, shoulder, "H" (Class XXV, Inter. 186)		1		1							4
in, shoulder, "I" (Class XXV, Inter. 186)		1		1							7
in, shoulder, "J" (Class XXV, Inter. 186)		6		4					2		17
in, shoulder, "L" (Class XXV, Inter. 186)		13	5	14	2				2		130
in, thigh, "G" (Class XXV, Inter. 186)		12	2	11					2	1	104
in, thigh, "J" (Class XXV, Inter. 186)		24	1	23	1				1		134
in, thigh, "K" (Class XXV, Inter. 186)			2	2							46
in, thigh, "L" (Class XXV, Inter. 186)	1	26	9	27	2				6	1	246
in, unqualified, "G" (Class XXV, Inter. 186)		7	6	8	3				2		71
in, unqualified, "J" (Class XXV, Inter. 186)		2	2	2	1				1		5
in, unqualified, "L" (Class XXV, Inter. 186)	3	10	7	9	1				8	2	142
in, wrist, "G" (Class XXV, Inter. 186)		1		1							2
in, wrist, "J" (Class XXV, Inter. 186)			1	1							2
in, wrist, "L" (Class XXV, Inter. 186)		1		1							2
in, regulation, "A" (Class XXV, Inter. 186)		7				7					0
in, regulation, "L" (Class XXV, Inter. 186)		2				2					0
in, immersion (nonfatal) "D" (Class XXV, Inter. 169A)		31	8	29	1				9		188
in, immersion (nonfatal) "DR" (Class XXV, Inter. 169A)		1		1							3
in, immersion (nonfatal) "G" (Class XXV, Inter. 169A)		1		1							5
in, immersion (nonfatal) "HR" (Class XXV, Inter. 169A)		1		1							4
in, immersion (nonfatal) "J" (Class XXV, Inter. 169A)		1		1							10
in, burn, arms, "L" (Class XXV, Inter. 167)		11		11							58
in, burn, back, "J" (Class XXV, Inter. 167)		1	1	1					4		10
in, burn, back, "L" (Class XXV, Inter. 167)		4		4							14
in, burn, face, "J" (Class XXV, Inter. 167)		1	2	1	1				1		9
in, burn, face, "L" (Class XXV, Inter. 167)		6		6							5
in, burn, feet, "J" (Class XXV, Inter. 167)		1		1							1
in, burn, feet, "L" (Class XXV, Inter. 167)		2		2							8
in, burn, general, "J" (Class XXV, Inter. 167)		7	1	6					2		35
in, burn, general, "L" (Class XXV, Inter. 167)		11	2	11					2		62
in, burn, head, "J" (Class XXV, Inter. 167)		2		2							4
in, burn, legs, "J" (Class XXV, Inter. 167)		4		4							20
in, burn, legs, "L" (Class XXV, Inter. 167)		16	3	16					3		74
in, burn, lower extremity, "J" (Class XXV, Inter. 167)			1	1							2
in, burn, lower extremity, "L" (Class XXV, Inter. 167)		4	2	4					2		24
in, burn, neck, "L" (Class XXV, Inter. 167)		21	1	22							61
in, burn, shoulders, "J" (Class XXV, Inter. 167)		3	1	4							15
in, burn, shoulders, "L" (Class XXV, Inter. 167)		12		11					1		33
in, burn, thigh, "J" (Class XXV, Inter. 167)		1		1							2

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1918—C

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.
<b>INJURIES—Continued.</b>										
Sunburn, thigh, "L" (Class XXV, Inter. 167)		1		1						
Sunburn, unqualified, "J" (Class XXV, Inter. 167)		1		1						
Sunburn, unqualified, "L" (Class XXV, Inter. 167)		5		5						
Sunburn, upper extremity, "J" (Class XXV, Inter. 167)		2		2						
Sunburn, upper extremity, "L" (Class XXV, Inter. 167)		9		9						
Stroke, "L" (Class XXV, Inter. 179B)	1	31	22	27	4	1	4		18	
Synovitis, traumatic, ankle, "G" (Class XXV, Inter. 186)		8	3	7	1					3
Synovitis, traumatic, ankle, "I" (Class XXV, Inter. 186)	1	1			1				1	
Synovitis, traumatic, ankle, "J" (Class XXV, Inter. 186)		5		4			1			
Synovitis, traumatic, ankle, "L" (Class XXV, Inter. 186)		6	4	2	3		2		3	
Synovitis, traumatic, elbow, "G" (Class XXV, Inter. 186)		1		1						
Synovitis, traumatic, elbow, "J" (Class XXV, Inter. 186)		1		1						
Synovitis, traumatic, elbow, "L" (Class XXV, Inter. 186)		7	1	5	2				1	
Synovitis, traumatic, finger, "H" (Class XXV, Inter. 186)		1	1						1	1
Synovitis, traumatic, finger, "J" (Class XXV, Inter. 186)		1	1	1	1					
Synovitis, traumatic, finger, "L" (Class XXV, Inter. 186)		2	2	2					2	
Synovitis, traumatic, foot, "H" (Class XXV, Inter. 186)			1	1						
Synovitis, traumatic, foot, "J" (Class XXV, Inter. 186)		1		1						
Synovitis, traumatic, foot, "L" (Class XXV, Inter. 186)		1	3	1	1				1	1
Synovitis, traumatic, hand, "H" (Class XXV, Inter. 186)		1							1	
Synovitis, traumatic, hand, "L" (Class XXV, Inter. 186)			6	3	2				1	
Synovitis, traumatic, hip, "G" (Class XXV, Inter. 186)		2		2						
Synovitis, traumatic, hip, "L" (Class XXV, Inter. 186)		1	2	2					1	
Synovitis, traumatic, knee, "E" (Class XXV, Inter. 186)		1	1	1					1	
Synovitis, traumatic, knee, "G" (Class XXV, Inter. 186)	6	195	110	170	20		11		80	21
Synovitis, traumatic, knee, "H" (Class XXV, Inter. 186)	1	7	2	7			1		2	
Synovitis, traumatic, knee, "I" (Class XXV, Inter. 186)		4	1	3	1				1	
Synovitis, traumatic, knee, "J" (Class XXV, Inter. 186)	2	96	61	92	7		10		42	8
Synovitis, traumatic, knee, "K" (Class XXV, Inter. 186)	1		9	1	1		1		5	2
Synovitis, traumatic, knee, "L" (Class XXV, Inter. 186)	11	137	96	134	11		15		71	13
Synovitis, traumatic, shoulder, "H" (Class XXV, Inter. 186)		1		1						
Synovitis, traumatic, shoulder, "L" (Class XXV, Inter. 186)		1		1						
Synovitis, traumatic, toe, "I" (Class XXV, Inter. 186)		1			1					
Synovitis, traumatic, toe, "L" (Class XXV, Inter. 186)			1	1						
Synovitis, traumatic, unqualified, "G" (Class XXV, Inter. 186)		7	1	3					5	
Synovitis, traumatic, unqualified, "J" (Class XXV, Inter. 186)		1		1						
Synovitis, traumatic, unqualified, "L" (Class XXV, Inter. 186)		12	2	5	2				7	
Synovitis, traumatic, vertebral-cervical, "G" (Class XXV, Inter. 186)		1		1						
Synovitis, traumatic, wrist, "G" (Class XXV, Inter. 186)		3		3						



TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1918—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
ovitis, traumatic, wrist, "H"											
Class XXV, Inter. 186.	1			1							5
ovitis, traumatic, wrist, "J"											
Class XXV, Inter. 186.	1			1							4
ovitis, traumatic, wrist, "L"											
Class XXV, Inter. 186.	1	1	1	1			1		1		38
me fever, "L" (Class XXV, Inter. 179A).		12	3	12	1				2		51
ion, spermatic cord, traumatic, "G" (Class XXV, Inter. 186).		2							1	1	15
ion, spermatic cord, traumatic, "L" (Class XXV, Inter. 186).		3	1	2	1				1		5
ch foot, "K" (Class XXV, Inter. 178).			10	6					2	2	206
ch foot, "L" (Class XXV, Inter. 178).				7						2	388
nd, abdomen, gunshot, "A"											
Class XXV, Inter. 170.	1	2				3					97
nd, abdomen, gunshot, "B"									2		
Class XXV, Inter. 170.		3		1					2		1
nd, abdomen, gunshot, "E"											
Class XXV, Inter. 170.		6	2	1		2	1		4		1
nd, abdomen, gunshot, "F"											
Class XXV, Inter. 170.		1		1							6
nd, abdomen, gunshot, "K"											
Class XXV, Inter. 170.	249	91	44	32	111				135	18	4,376
nd, abdomen, gunshot, "L"											
Class XXV, Inter. 170.		3	1	4							102
nd, abdomen, incised, "B"											
Class XXV, Inter. 171.		2	3	3	1	1					47
nd, abdomen, incised, "G"											
Class XXV, Inter. 171.		1		1							28
nd, abdomen, incised, "H"											
Class XXV, Inter. 171.		1								1	4
nd, abdomen, incised, "L"											
Class XXV, Inter. 171.		9	2	8	1				2		144
nd, abdomen, lacerated, "A" (Class XXV, Inter. 186).											
nd, abdomen, lacerated, "B" (Class XXV, Inter. 186).		3		1					2		3
nd, abdomen, lacerated, "C" (Class XXV, Inter. 186).			1	2					1	1	12
nd, abdomen, lacerated, "D" (Class XXV, Inter. 186).		2	2	2	1				1		53
nd, abdomen, lacerated, "E" (Class XXV, Inter. 186).											
nd, abdomen, lacerated, "F" (Class XXV, Inter. 186).		1		1							18
nd, abdomen, lacerated, "G" (Class XXV, Inter. 186).		1							1		0
nd, abdomen, lacerated, "H" (Class XXV, Inter. 186).		1		1							13
nd, abdomen, lacerated, "I" (Class XXV, Inter. 186).		1	46	18	2	1			21	5	1,136
nd, abdomen, lacerated, "J" (Class XXV, Inter. 186).		2	1	2					1		72
nd, abdomen, punctured, "A" (Class XXV, Inter. 171).		1	1		1				1		2
nd, abdomen, punctured, "B" (Class XXV, Inter. 171).		8	3	4	1				6		67
nd, abdomen, punctured, "C" (Class XXV, Inter. 171).		3	2	1	1	1			2		73
nd, abdomen, punctured, "D" (Class XXV, Inter. 171).		3	1	1					2	1	130
nd, abdomen, punctured, "E" (Class XXV, Inter. 171).		1					1				28
nd, abdomen, punctured, "F" (Class XXV, Inter. 171).											
nd, abdomen, punctured, "G" (Class XXV, Inter. 171).		3		3							19
nd, abdomen, punctured, "H" (Class XXV, Inter. 171).											
nd, abdomen, punctured, "I" (Class XXV, Inter. 171).		2	36	13			1		18	6	1,738
nd, abdomen, punctured, "J" (Class XXV, Inter. 171).											
nd, ankle, gunshot, "E"	1	5	4	7					1	2	127
Class XXV, Inter. 170.		4	4	1			1		5	1	379
nd, ankle, gunshot, "K"											
Class XXV, Inter. 170.	09	76	33			1			98	13	4,197
nd, ankle, gunshot, "L"											
Class XXV, Inter. 170.		1	1	1					1		95
nd, ankle, incised, "C"											
Class XXV, Inter. 171.		1							1		0
nd, ankle, incised, "L"											
Class XXV, Inter. 171.		6	1	7							58
nd, ankle, lacerated, "E"											
Class XXV, Inter. 186.			3	1					1	1	147

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1918—

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.
<b>INJURIES—Continued.</b>										
Wound, an'le, lacerated, "G" (Class XXV, Inter. 186)		2	2	3				1		
Wound, an'le, lacerated, "H" (Class XXV, Inter. 186)		1		1						
Wound, an'le, lacerated, "I" (Class XXV, Inter. 186)		1		1						
Wound, an'le, lacerated, "J" (Class XXV, Inter. 186)	1	1	3	2					2	1
Wound, an'le, lacerated, "K" (Class XXV, Inter. 186)		1	33	7					14	13
Wound, an'le, lacerated, "L" (Class XXV, Inter. 186)		12	1	11					1	1
Wound, an'le, punctured, "E" (Class XXV, Inter. 171)		1	2	2					1	
Wound, an'le, punctured, "G" (Class XXV, Inter. 171)		1		1						
Wound, an'le, punctured, "K" (Class XXV, Inter. 171)			17	4					8	5
Wound, an'le, punctured, "L" (Class XXV, Inter. 171)		2	1	2						1
Wound, arm, gunshot, "A" (Class XXV, Inter. 170)			1	1						
Wound, arm, gunshot, "B" (Class XXV, Inter. 170)			2	2						
Wound, arm, gunshot, "E" (Class XXV, Inter. 170)		8	6	5			1		8	
Wound, arm, gunshot, "K" (Class XXV, Inter. 170)	463	452	189	8	10	2			638	68
Wound, arm, incised, "G" (Class XXV, Inter. 171)		4		4						
Wound, arm, incised, "K" (Class XXV, Inter. 171)		1	2	1					2	
Wound, arm, incised, "L" (Class XXV, Inter. 171)	1	9	2	11	1					
Wound, arm, lacerated, "E" (Class XXV, Inter. 186)		9	1	1					9	
Wound, arm, lacerated, "F" (Class XXV, Inter. 186)		1	5	1	5				2	
Wound, arm, lacerated, "G" (Class XXV, Inter. 186)	1	9	1	8					3	
Wound, arm, lacerated, "H" (Class XXV, Inter. 186)	1	4	4	5					3	1
Wound, arm, lacerated, "I" (Class XXV, Inter. 186)		1	1	1					1	
Wound, arm, lacerated, "J" (Class XXV, Inter. 186)			2						2	
Wound, arm, lacerated, "K" (Class XXV, Inter. 186)		11	182	52			3		79	56
Wound, arm, lacerated, "L" (Class XXV, Inter. 186)	20	8	20						7	1
Wound, arm, punctured, "E" (Class XXV, Inter. 171)			1						1	
Wound, arm, punctured, "F" (Class XXV, Inter. 171)		2		1		1				
Wound, arm, punctured, "G" (Class XXV, Inter. 171)			1	1						
Wound, arm, punctured, "H" (Class XXV, Inter. 171)		1							1	
Wound, arm, punctured, "J" (Class XXV, Inter. 171)			2						2	
Wound, arm, punctured, "K" (Class XXV, Inter. 171)		1	107	45	1				33	28
Wound, arm, punctured, "L" (Class XXV, Inter. 171)		5	3	4					3	1
Wound, back, gunshot, "B" (Class XXV, Inter. 170)		3		1	2					
Wound, back, gunshot, "E" (Class XXV, Inter. 170)		5	2	4	1	1			1	
Wound, back, gunshot, "K" (Class XXV, Inter. 170)		12	136	68	15	39			202	24
Wound, back, lacerated, "E" (Class XXV, Inter. 186)		3							3	
Wound, back, lacerated, "F" (Class XXV, Inter. 186)		1	1	1					1	
Wound, back, lacerated, "G" (Class XXV, Inter. 186)		1		1						
Wound, back, lacerated, "I" (Class XXV, Inter. 186)			1	1						
Wound, back, lacerated, "K" (Class XXV, Inter. 186)		2	48	22					16	12
Wound, back, lacerated, "L" (Class XXV, Inter. 186)		2		2						



TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1918.—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
und, back, punctured, "B"											
Class XXV, Inter. 171)		1		1							18
und, back, punctured, "E"											
Class XXV, Inter. 171)		1							1		0
und, back, punctured, "G"											
Class XXV, Inter. 171)		1		1							43
und, back, punctured, "K"											
Class XXV, Inter. 171)		1	24	15	1				5	4	892
und, back, punctured, "L"											
Class XXV, Inter. 171)		3	3	3					2	1	93
und, bladder, lacerated, "G"											
Class XXV, Inter. 186)		1		1							26
und, bladder, lacerated, "L"											
Class XXV, Inter. 186)		1		1							5
und, ear, gunshot, "K"											
Class XXV, Inter. 170)		7	10	9					8		238
und, ear, incised, "L" (Class XXV, Inter. 171)		2		1					1		9
und, ear, lacerated, "E"											
Class XXV, Inter. 180)			1	1							12
und, ear, lacerated, "F"											
Class XXV, Inter. 180)		2	5	5					2		52
und, ear, lacerated, "G"											
Class XXV, Inter. 180)	1	6		6					1		31
und, ear, lacerated, "H"											
Class XXV, Inter. 180)		1		1							11
und, ear, lacerated, "I"											
Class XXV, Inter. 180)			1							1	11
und, ear, lacerated, "K"											
Class XXV, Inter. 186)		1		1							1
und, ear, lacerated, "L"											
Class XXV, Inter. 180)		11	1	11					1		67
und, ear, punctured, "K"											
Class XXV, Inter. 171)			3	2					1		28
und, elbow, gunshot, "B"											
Class XXV, Inter. 170)		1	1	1					1		21
und, elbow, gunshot, "E"											
Class XXV, Inter. 170)		4	5	1			1		7		220
und, elbow, gunshot, "K"											
Class XXV, Inter. 170)		36	75	25					79	7	2,919
und, elbow, gunshot, "L"											
Class XXV, Inter. 170)			1	1							21
und, elbow, incised, "A"											
Class XXV, Inter. 171)		2	2	1	1				2		33
und, elbow, incised, "L"											
Class XXV, Inter. 171)		2		2							32
und, elbow, lacerated, "E"											
Class XXV, Inter. 186)			1						1		4
und, elbow, lacerated, "G"											
Class XXV, Inter. 186)		11		10					1		58
und, elbow, lacerated, "H"											
Class XXV, Inter. 186)			1		1						3
und, elbow, lacerated, "HR"											
Class XXV, Inter. 186)		1		1							3
und, elbow, lacerated, "I"											
Class XXV, Inter. 186)		1		1							11
und, elbow, lacerated, "K"											
Class XXV, Inter. 186)			23	4					8	11	958
und, elbow, lacerated, "L"											
Class XXV, Inter. 186)		1	1	1					1		27
und, elbow, punctured, "E"											
Class XXV, Inter. 171)		1							1		0
und, elbow, punctured, "G"											
Class XXV, Inter. 171)		1		1							1
und, elbow, punctured, "I"											
Class XXV, Inter. 171)		1								1	8
und, elbow, punctured, "K"											
Class XXV, Inter. 171)			17	5	2				4	6	819
und, eye, gunshot, "F"											
Class XXV, Inter. 170)			4		4						194
und, eye, gunshot, "K"											
Class XXV, Inter. 170)		29	32	13	2	1	1		38	6	1,435
und, eye, gunshot, "L"											
Class XXV, Inter. 170)		2		1						1	29
und, eye, incised, "F"											
Class XXV, Inter. 171)		2	1	2					1		10
und, eye, incised, "G"											
Class XXV, Inter. 171)		3		2					1		2
und, eye incised, "H" (Class XXV, Inter. 171)		3		2					1		10
und, eye incised, "L" (Class XXV, Inter. 171)		10	8	8	1		2		5	2	216

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1918—Co

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.
<b>INJURIES—Continued.</b>										
Wound, eye, lacerated, "B" (Class XXV, Inter. 186)		1		1						
Wound, eye, lacerated, "E" (Class XXV, Inter. 186)		4	6	3			3		3	1
Wound, eye, lacerated, "F" (Class XXV, Inter. 186)	2	9	6	8	2		3		4	
Wound, eye, lacerated, "G" (Class XXV, Inter. 186)		23	5	23					4	1
Wound, eye, lacerated, "H" (Class XXV, Inter. 186)		8		7					1	
Wound, eye, lacerated, "HR" (Class XXV, Inter. 186)		1		1						
Wound, eye, lacerated, "HS" (Class XXV, Inter. 186)		1		1						
Wound, eye, lacerated, "I" (Class XXV, Inter. 186)		2	1	2					1	
Wound, eye, lacerated, "J" (Class XXV, Inter. 186)		9	1	7			1		2	
Wound, eye, lacerated, "K" (Class XXV, Inter. 186)		2	27	4	1				14	10
Wound, eye, lacerated, "L" (Class XXV, Inter. 186)	2	55	29	55	7				19	5
Wound, eye, punctured, "B" (Class XXV, Inter. 171)		1				1				
Wound, eye, punctured, "E" (Class XXV, Inter. 171)		1	1				1		1	
Wound, eye, punctured, "F" (Class XXV, Inter. 171)		2	5	1	2		1		1	2
Wound, eye, punctured, "G" (Class XXV, Inter. 171)		1		1						
Wound, eye, punctured, "H" (Class XXV, Inter. 171)		1		1						
Wound, eye, punctured, "K" (Class XXV, Inter. 171)		4	13	1					8	8
Wound, eye, punctured, "L" (Class XXV, Inter. 171)	1	17	15	8	2		5		15	3
Wound, face, gunshot, "A" (Class XXV, Inter. 170)		1	1		1				1	
Wound, face, gunshot, "B" (Class XXV, Inter. 170)		1							1	
Wound, face, gunshot, "E" (Class XXV, Inter. 170)		3	2	4	1					
Wound, face, gunshot, "F" (Class XXV, Inter. 170)		25	4	17	2				10	
Wound, face, gunshot, "K" (Class XXV, Inter. 170)		141	92	49	4	1			169	10
Wound, face incised, "A" (Class XXV, Inter. 171)			2	1	1					
Wound, face incised, "B" (Class XXV, Inter. 171)		2	1	2					1	
Wound, face incised, "F" (Class XXV, Inter. 171)		1		1						
Wound, face incised, "G" (Class XXV, Inter. 171)		5	2	5					2	
Wound, face incised, "GR" (Class XXV, Inter. 171)		1		1						
Wound, face incised, "H" (Class XXV, Inter. 171)		2		2						
Wound, face incised, "HR" (Class XXV, Inter. 171)		1		1						
Wound, face incised, "J" (Class XXV, Inter. 171)		3	1	3					1	
Wound, face incised, "L" (Class XXV, Inter. 171)		10	5	12					3	
Wound, face, lacerated, "B" (Class XXV, Inter. 186)		1		1						
Wound, face, lacerated, "E" (Class XXV, Inter. 186)		4		1					2	1
Wound, face, lacerated, "F" (Class XXV, Inter. 186)		3	1	3	1					
Wound, face, lacerated, "G" (Class XXV, Inter. 186)		32		29					2	1
Wound, face, lacerated, "GR" (Class XXV, Inter. 186)		8	3	5					4	2
Wound, face, lacerated, "GS" (Class XXV, Inter. 186)		1		1						
Wound, face, lacerated, "H" (Class XXV, Inter. 186)		3	1	3						1
Wound, face, lacerated, "HR" (Class XXV, Inter. 186)		1		1						
Wound, face, lacerated, "I" (Class XXV, Inter. 186)		4		3					1	

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1918—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
nd, face, lacerated, "J" ss XXV, Inter. 186)		1	1	2							37
nd, face, lacerated, "K" ss XXV, Inter. 186)		2	51	29	2				18	4	1,068
nd, face, lacerated, "L" ss XXV, Inter. 186)		43	12	46	2				7		263
nd, face, lacerated, "LR" ss XXV, Inter. 186)			1	1							1
nd, face, punctured, "E" ss XXV, Inter. 171)		1							1		0
nd, face, punctured, "F" ss XXV, Inter. 171)		2		1					1		98
nd, face, punctured, "GR" ss XXV, Inter. 171)		1		1							1
nd, face, punct red, "I" ss XXV, Inter. 171)			23	9					10	4	810
nd, face, punctured, "K" ss XXV, Inter. 171)		2		2							8
nd, finger, gunshot, "B" ss XXV, Inter. 170)	1	1	1	1	1				1		157
nd, finger, gunshot, "E" ss XXV, Inter. 170)	2	22	11	21	2		2		8	2	773
nd, finger, gunshot, "F" ss XXV, Inter. 170)		1		1							7
nd, finger, gunshot, "K" ss XXV, Inter. 170)		18	79	56	4				29	8	3,134
nd, finger, gunshot, "L" ss XXV, Inter. 170)		3		2					1		3
nd, finger, incised, "Q" ss XXV, Inter. 171)		2		2							11
nd, finger, incised, "H" ss XXV, Inter. 171)	2	32	8	30	1				7	4	717
nd, finger, incised, "I" ss XXV, Inter. 171)		7		5					1	1	87
nd, finger, incised, "L" ss XXV, Inter. 171)	3	107	32	111	4		2		22	3	2,193
nd, finger, lacerated, "C" ss XXV, Inter. 186)		1	4	5							5
nd, finger, lacerated, "E" ss XXV, Inter. 186)		6	7	4					7	2	114
nd, finger, lacerated, "IS" ss XXV, Inter. 186)			2	1					1		48
nd, finger, lacerated, "F" ss XXV, Inter. 186)		2	7	5					4		296
nd, finger, lacerated, "G" ss XXV, Inter. 186)		21	4	18	2				3	2	492
nd, finger, lacerated, "H" ss XXV, Inter. 186)	8	267	48	256	9		1		44	13	5,421
nd, finger, lacerated, "HR" ss XXV, Inter. 186)		4		3					1		13
nd, finger, lacerated, "I" ss XXV, Inter. 186)	6	171	20	173	2				17	5	2,892
nd, finger, lacerated, "J" ss XXV, Inter. 186)		11	3	14							215
nd, finger, lacerated, "K" ss XXV, Inter. 186)		1	41	30					7	5	1,463
nd, finger, lacerated, "L" ss XXV, Inter. 186)	7	210	42	203	3		2	1	38	12	3,440
nd, finger, lacerated, "LS" ss XXV, Inter. 186)		1		1							2
nd, finger, punctured, "E" ss XXV, Inter. 171)			1						1		64
nd, finger, punctured, "K" ss XXV, Inter. 171)			10	7						3	588
nd, finger, punctured, "L" ss XXV, Inter. 171)	1	16	2	16	1				2		149
nd, foot, gunshot, "B" ss XXV, Inter. 170)	1								1		76
nd, foot, gunshot, "E" ss XXV, Inter. 170)	4	37	48	33	2		7		41	6	3,072
nd, foot, gunshot, "K" ss XXV, Inter. 170)		229	258	114	4		2		330	37	3,294
nd, foot, gunshot, "L" ss XXV, Inter. 170)		3	7	2	1		1		6		135
nd, foot, incised, "E" ss XXV, Inter. 171)	1		1	1					1		21
nd, foot, incised, "Q" ss XXV, Inter. 171)		1							1		0
nd, foot, incised, "I" (Class XV, Inter. 171)		1	1						2		107
nd, foot, incised, "J" (Class XV, Inter. 171)		7	1	7					1		9

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1918—Continued.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.
<b>INJURIES—Continued.</b>										
Wound, foot, incised, "K" (Class XXV, Inter. 171).....		1	1		1				1	
Wound, foot, incised, "L" (Class XXV, Inter. 171).....	1	55	16	61	1		2		5	3
Wound, foot, lacerated, "E" (Class XXV, Inter. 186).....		14	3	2					12	3
Wound, foot, lacerated, "G" (Class XXV, Inter. 186).....		16	1	16					1	
Wound, foot, lacerated, "H" (Class XXV, Inter. 186).....		7	6	8	1		1		3	
Wound, foot, lacerated, "I" (Class XXV, Inter. 186).....	1	27	11	26	2		1		9	1
Wound, foot, lacerated, "J" (Class XXV, Inter. 186).....		21	2	21					2	
Wound, foot, lacerated, "K" (Class XXV, Inter. 186).....		7	113	38	2		2		43	35
Wound, foot, lacerated, "L" (Class XXV, Inter. 186).....	2	81	21	78	8				12	6
Wound, foot, punctured, "E" (Class XXV, Inter. 171).....		5	7	5			1		2	4
Wound, foot, punctured, "F" (Class XXV, Inter. 171).....			1						1	
Wound, foot, punctured, "G" (Class XXV, Inter. 171).....		7		7						
Wound, foot, punctured, "H" (Class XXV, Inter. 171).....		1		1						
Wound, foot, punctured, "I" (Class XXV, Inter. 171).....		3		3						
Wound, foot, punctured, "J" (Class XXV, Inter. 171).....		2		2						
Wound, foot, punctured, "K" (Class XXV, Inter. 171).....		5	62	29					23	15
Wound, foot, punctured, "L" (Class XXV, Inter. 171).....	1	367	57	372	4				41	8
Wound, forearm, gunshot, "B" (Class XXV, Inter. 170).....		2	1	1					2	
Wound, forearm, gunshot, "E" (Class XXV, Inter. 170).....	1	11	11	8			4		10	1
Wound, forearm, gunshot, "ER" (Class XXV, Inter. 170).....			1	1						
Wound, forearm, gunshot, "F" (Class XXV, Inter. 170).....		2	3		3				2	
Wound, forearm, gunshot, "K" (Class XXV, Inter. 170).....		64	230	88	4	1	1	1	174	25
Wound, forearm, incised, "A" (Class XXV, Inter. 171).....	1	1	2		1		1		2	
Wound, forearm, incised, "B" (Class XXV, Inter. 171).....		1							1	
Wound, forearm, incised, "G" (Class XXV, Inter. 171).....		4	1	3					2	
Wound, forearm, incised, "H" (Class XXV, Inter. 171).....		1	1	1	1					
Wound, forearm, incised, "L" (Class XXV, Inter. 171).....	1	24	4	24			1		4	
Wound, forearm, lacerated, "A" (Class XXV, Inter. 186).....		1		1						
Wound, forearm, lacerated, "B" (Class XXV, Inter. 186).....			1						1	
Wound, forearm, lacerated, "E" (Class XXV, Inter. 186).....		1	2						1	2
Wound, forearm, lacerated, "F" (Class XXV, Inter. 186).....		1	6	6	1					
Wound, forearm, lacerated, "G" (Class XXV, Inter. 186).....		8	3	7	1				3	
Wound, forearm, lacerated, "H" (Class XXV, Inter. 186).....		11		8	1				2	
Wound, forearm, lacerated, "I" (Class XXV, Inter. 186).....		1		1						
Wound, forearm, lacerated, "J" (Class XXV, Inter. 186).....			1						1	
Wound, forearm, lacerated, "K" (Class XXV, Inter. 186).....			102	32	1				41	28
Wound, forearm, lacerated, "L" (Class XXV, Inter. 186).....		19	2	16					2	3
Wound, forearm, punctured, "E" (Class XXV, Inter. 171).....		1							1	
Wound, forearm, punctured, "H" (Class XXV, Inter. 171).....		1		1						
Wound, forearm, punctured, "K" (Class XXV, Inter. 171).....		3	50	23	2				22	16

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1912—Contd.

Diagnoses.	Regt.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Hematoma, traumatic, upper extremity, "L" (Class XXV, Inter. 186)		1							1		0
Hemorrhage into eyeball, traumatic, "E" (Class XXV, Inter. 186)		1	1	1					1		3
Hemorrhage into eyeball, traumatic, "G" (Class XXV, Inter. 186)		3	2	1	1				3		14
Hemorrhage into eyeball, traumatic, "GR" (Class XXV, Inter. 186)		1		1							3
Hemorrhage into eyeball, traumatic, "J" (Class XXV, Inter. 186)		2	2	2	1				1		13
Hemorrhage into eyeball, traumatic, "L" (Class XXV, Inter. 186)	1	12	10	13					10		336
Hemorrhage into wrist joint, "J" (Class XXV, Inter. 186)		1		1							6
Hemorrhage under conjunctiva, traumatic, "F" (Class XXV, Inter. 186)		3	1	3					1		3
Hemorrhage under conjunctiva, traumatic, "G" (Class XXV, Inter. 186)		3		3							25
Hemorrhage under conjunctiva, traumatic, "J" (Class XXV, Inter. 186)		3		3							7
Hemorrhage under conjunctiva, traumatic, "L" (Class XXV, Inter. 186)		12	1	11					2		35
Intracranial injury, "C" (Class XXV, Inter. 186)		1					1				0
Intracranial injury, "F" (Class XXV, Inter. 186)		1	1	2							23
Intracranial injury, "G" (Class XXV, Inter. 186)	3	47	50	34	8	3	9		29	5	1,628
Intracranial injury, "GR" (Class XXV, Inter. 186)		3				2					0
Intracranial injury, "H" (Class XXV, Inter. 186)		5		4		1					19
Intracranial injury, "HR" (Class XXV, Inter. 186)		1				1					0
Intracranial injury, "I" (Class XXV, Inter. 186)	1	3	3	3	1	1			2		45
Intracranial injury, "J" (Class XXV, Inter. 186)		17	14	15	2	2	1		10	1	304
Intracranial injury, "K" (Class XXV, Inter. 186)		157	178	128	14	3		2	176	12	7,123
Intracranial injury, "L" (Class XXV, Inter. 186)	4	29	30	18	7	3	10	1	26	5	1,211
Intracranial injury, "G" (Class XXV, Inter. 186)		6	7	5	4				3	1	171
Intraspinal injury, "GR" (Class XXV, Inter. 186)		1					1				1
Intraspinal injury, "I" (Class XXV, Inter. 186)		1	1				1		1		67
Intraspinal injury, "K" (Class XXV, Inter. 186)		1	3	2					2		69
Intraspinal injury, "L" (Class XXV, Inter. 186)		4	4	2	2		1		3		90
Lightning stroke, "L" (Class XXV, Inter. 186)		3	2	3		1			1		15
Multiple injuries, extreme, "A" (Class XXV, Inter. 186)		2		1		1					7
Multiple injuries, extreme, "E" (Class XXV, Inter. 186)		4				4					2
Multiple injuries, extreme, "F" (Class XXV, Inter. 186)		46	2	1		42			5		390
Multiple injuries, extreme, "FR" (Class XXV, Inter. 186)		3				3					0
Multiple injuries, extreme, "FS" (Class XXV, Inter. 186)		2	1			1			2		9
Multiple injuries, extreme, "G" (Class XXV, Inter. 186)	2	19	12	8	2	6	3		12	2	564
Multiple injuries, extreme, "GR" (Class XXV, Inter. 186)		25	5	7		15			7	1	346
Multiple injuries, extreme, "H" (Class XXV, Inter. 186)	1	8	7	4	1	5	2		4		361
Multiple injuries, extreme, "HR" (Class XXV, Inter. 186)		3	2	2	1	2					51



TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1918

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	O.
<b>INJURIES—Continued.</b>										
Hematoma, traumatic, abdomen, "J" (Class XXV, Inter. 183).....		1	2		1				1	
Hematoma, traumatic, abdomen, "L" (Class XXV, Inter. 183).....		1	1						1	
Hematoma, traumatic, arm, "J" (Class XXV, Inter. 183).....		1		1						
Hematoma, traumatic, arm, "L" (Class XXV, Inter. 183).....		1		1						
Hematoma, traumatic, back, "L" (Class XXV, Inter. 183).....		1		1						
Hematoma, traumatic, bladder, "J" (Class XXV, Inter. 183).....		1							1	
Hematoma, traumatic, ear, "E" (Class XXV, Inter. 183).....		1		1						
Hematoma, traumatic, ear, "J" (Class XXV, Inter. 183).....		1	1	2						
Hematoma, traumatic, ear, "L" (Class XXV, Inter. 183).....		1	1	1					1	
Hematoma, traumatic, eye, "GR" (Class XXV, Inter. 183).....		1		1						
Hematoma, traumatic, eye, "J" (Class XXV, Inter. 183).....		1		1						
Hematoma, traumatic, eye, "L" (Class XXV, Inter. 183).....		1		1						
Hematoma, traumatic, finger, "L" (Class XXV, Inter. 183).....		1		1						
Hematoma, traumatic, head, "J" (Class XXV, Inter. 183).....		2	1	2					1	
Hematoma, traumatic, head, "L" (Class XXV, Inter. 183).....		3	1	3					1	
Hematoma, traumatic, heart, "J" (Class XXV, Inter. 183).....		1							1	
Hematoma, traumatic, hip, "G" (Class XXV, Inter. 183).....		1		1						
Hematoma, traumatic, hip, "I" (Class XXV, Inter. 183).....			1	1						
Hematoma, traumatic, intestine, "I" (Class XXV, Inter. 183).....			1				1			
Hematoma, traumatic, knee, "G" (Class XXV, Inter. 183).....		1		1						
Hematoma, traumatic, knee, "L" (Class XXV, Inter. 183).....		2	2	2	1				1	
Hematoma, traumatic, leg, "G" (Class XXV, Inter. 183).....		6	2	3	2				2	
Hematoma, traumatic, leg, "I" (Class XXV, Inter. 183).....		1		1						
Hematoma, traumatic, leg, "J" (Class XXV, Inter. 183).....		2		2						
Hematoma, traumatic, leg, "L" (Class XXV, Inter. 183).....		1	2	1	1					
Hematoma, traumatic, neck, "L" (Class XXV, Inter. 183).....		1		1						
Hematoma, traumatic, nose, "L" (Class XXV, Inter. 183).....		1		1						
Hematoma, traumatic, pelvis, "I" (Class XXV, Inter. 183).....	1	1			1				1	
Hematoma, traumatic, penis, "G" (Class XXV, Inter. 183).....		1		1						
Hematoma, traumatic, penis, "L" (Class XXV, Inter. 183).....			2	1	1					
Hematoma, traumatic, rectum, "J" (Class XXV, Inter. 183).....		1							1	
Hematoma, traumatic, testicle, "G" (Class XXV, Inter. 183).....		1		1						
Hematoma, traumatic, testicle, "J" (Class XXV, Inter. 183).....		1								
Hematoma, traumatic, testicle, "L" (Class XXV, Inter. 183).....		4	1	3	1				1	
Hematoma, traumatic, thigh, "G" (Class XXV, Inter. 183).....		6		5						
Hematoma, traumatic, thigh, "J" (Class XXV, Inter. 183).....		2	1	2					1	
Hematoma, traumatic, thigh, "L" (Class XXV, Inter. 183).....		1	1	2						
Hematoma, traumatic, toe, "I" (Class XXV, Inter. 183).....		2		2						
Hematoma, traumatic, unqualified, "J" (Class XXV, Inter. 183).....			2	1	1					
Hematoma, traumatic, upper extremity, "J" (Class XXV, Inter. 183).....		1		1						

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1918—Contd.

Diagnoses.	Regt.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days
<b>INJURIES—Continued.</b>											
matoma, traumatic, upper extremity, "L" (Class XXV, Inter. 186)		1							1		0
hemorrhage into eyeball, traumatic, "E" (Class XXV, Inter. 186)		1	1	1					1		2
hemorrhage into eyeball, traumatic, "G" (Class XXV, Inter. 186)		3	3	1	1				3		14
hemorrhage into eyeball, traumatic, "GR" (Class XXV, Inter. 186)		1		1							3
hemorrhage into eyeball, traumatic, "J" (Class XXV, Inter. 186)		2	2	2	1				1		13
hemorrhage into eyeball, traumatic, "L" (Class XXV, Inter. 186)	1	12	10	13					10		336
hemorrhage into wrist joint, "J" (Class XXV, Inter. 186)		1		1							6
hemorrhage under conjunctiva, traumatic, "F" (Class XXV, Inter. 186)		2	1	2					1		3
hemorrhage under conjunctiva, traumatic, "G" (Class XXV, Inter. 186)		2		2							25
hemorrhage under conjunctiva, traumatic, "J" (Class XXV, Inter. 186)		2		2							7
hemorrhage under conjunctiva, traumatic, "L" (Class XXV, Inter. 186)		12	1	11					2		55
facial injury, "C" (Class XXV, Inter. 186)		1					1				0
facial injury, "F" (Class XXV, Inter. 186)		1	1	2							33
facial injury, "G" (Class XXV, Inter. 186)	3	47	50	36	8	3	9		29	5	1,636
facial injury, "GR" (Class XXV, Inter. 186)		2				2					0
facial injury, "H" (Class XXV, Inter. 186)		5		4		1					19
facial injury, "HR" (Class XXV, Inter. 186)		1				1					0
facial injury, "I" (Class XXV, Inter. 186)	1	3	3	3	1	1			2		45
facial injury, "J" (Class XXV, Inter. 186)		17	14	15	2	2	1		10	1	304
facial injury, "K" (Class XXV, Inter. 186)		157	178	128	14	3		2	176	12	7,122
facial injury, "L" (Class XXV, Inter. 186)	4	29	30	18	7	2	10	1	20	5	1,211
facial injury, "G" (Class XXV, Inter. 186)		6	7	5	4				3	1	171
facial injury, "GR" (Class XXV, Inter. 186)		1				1					1
facial injury, "I" (Class XXV, Inter. 186)		1	1				1		1		67
facial injury, "K" (Class XXV, Inter. 186)		1	3	2					2		69
facial injury, "L" (Class XXV, Inter. 186)		4	4	2	2		1		3		90
facial injury, "L" (Class XXV, Inter. 186)		3	2	3		1			1		15
multiple injuries extreme, "A" (Class XXV, Inter. 186)		2		1		1					7
multiple injuries extreme, "E" (Class XXV, Inter. 186)		4				4					2
multiple injuries extreme, "F" (Class XXV, Inter. 186)		46	3	1		42			5		380
multiple injuries extreme, "FR" (Class XXV, Inter. 186)		3				3					0
multiple injuries extreme, "FS" (Class XXV, Inter. 186)		2	1			1			2		9
multiple injuries extreme, "G" (Class XXV, Inter. 186)	2	19	12	8	2	6	3		12	2	564
multiple injuries extreme, "GR" (Class XXV, Inter. 186)		25	5	7		15			7	1	346
multiple injuries extreme, "H" (Class XXV, Inter. 186)	1	8	7	4	1	5	2		4		361
multiple injuries extreme, "HR" (Class XXV, Inter. 186)		3	2	2	1	2					51

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1918—Co

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.
<b>INJURIES—Continued.</b>										
Multiple injuries, extreme, "I" (Class XXV, Inter. 186).....		13	1	1		12			1	
Multiple injuries, extreme, "K" (Class XXV, Inter. 186).....		1	1			1			1	
Multiple injuries, extreme, "L" (Class XXV, Inter. 186).....		40	9	5		31			9	4
Rupture, traumatic, abdominal, "F" (Class XXV, Inter. 186).....		1				1				
Rupture, traumatic, abdominal, "G" (Class XXV, Inter. 186).....		1	1	1		1				
Rupture, traumatic, abdominal, "L" (Class XXV, Inter. 186).....		2							2	
Rupture, traumatic, bladder, "G" (Class XXV, Inter. 186).....		1								1
Rupture, traumatic, cartilage, knee, "I" (Class XXV, Inter. 186).....		1							1	
Rupture, traumatic, cartilage, knee, "J" (Class XXV, Inter. 186).....		3		2			1			
Rupture, traumatic, cartilage, knee, "L" (Class XXV, Inter. 186).....		1	4						4	1
Rupture, traumatic, globe, eye, "E" (Class XXV, Inter. 186).....		1							1	
Rupture, traumatic, globe, eye, "F" (Class XXV, Inter. 186).....			1							1
Rupture, traumatic, globe, eye, "E" (Class XXV, Inter. 186).....		1	2		1				1	1
Rupture, traumatic, globe, eye, "L" (Class XXV, Inter. 186).....		4	2	2					4	
Rupture, traumatic, heart, "GR" (Class XXV, Inter. 186).....		1				1				
Rupture, traumatic, intestine, "L" (Class XXV, Inter. 186).....		1				1				
Rupture, traumatic, kidney, "G" (Class XXV, Inter. 186).....	1	2	1	1	1				1	1
Rupture, traumatic, kidney, "GR" (Class XXV, Inter. 186).....		1				1				
Rupture, traumatic, kidney, "L" (Class XXV, Inter. 186).....			1							1
Rupture, traumatic, ligament, finger, "L" (Class XXV, Inter. 186).....		1	1	1					1	
Rupture, traumatic, ligament, foot, "G" (Class XXV, Inter. 186).....		1		1						
Rupture, traumatic, ligament, foot, "J" (Class XXV, Inter. 186).....		2	2	3					1	
Rupture, traumatic, ligament, hand, "L" (Class XXV, Inter. 186).....		1	2	1	1				1	
Rupture, traumatic, ligament, unqualified, "G" (Class XXV, Inter. 186).....		1	1	1	1					
Rupture, traumatic, ligament, unqualified, "H" (Class XXV, Inter. 186).....		1	2						2	1
Rupture, traumatic, ligament, unqualified, "J" (Class XXV, Inter. 186).....			1	1						
Rupture, traumatic, ligament, unqualified, "L" (Class XXV, Inter. 186).....		2	3	3			1		1	
Rupture, traumatic, liver, "G" (Class XXV, Inter. 186).....		1	1		1	1				
Rupture, traumatic, lung, "GR" (Class XXV, Inter. 186).....		2								
Rupture, traumatic, lung, "J" (Class XXV, Inter. 186).....		1		1						
Rupture, traumatic, lung, "L" (Class XXV, Inter. 186).....		1				1				
Rupture, traumatic, muscle, arm, "K" (Class XXV, Inter. 186).....			1						1	
Rupture, traumatic, muscle, arm, "L" (Class XXV, Inter. 186).....		1		1						
Rupture, traumatic, muscle, leg, "I" (Class XXV, Inter. 186).....			2						2	
Rupture, traumatic, muscle, leg, "L" (Class XXV, Inter. 186).....		1	1	2						



BLE 1.—Detailed statement of diseases and injuries for the calendar year 1918—Contd.

Diagnosis.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
pture, traumatic, muscle, high, "G" (Class XXV, Inter. 186)		1		1							37
pture, traumatic, muscle, unqualified, "I" (Class XXV, Inter. 186)		1							1		0
pture, traumatic, muscle, unqualified, "J" (Class XXV, Inter. 186)		1					1				16
pture, traumatic, muscle, unqualified, "L" (Class XXV, Inter. 186)	1	3	6	2	1		4		2	1	343
pture, traumatic, perineum, "G" (Class XXV, Inter. 186)		1								1	21
pture, traumatic, prostate, "G" (Class XXV, Inter. 186)		1							1		0
pture, traumatic, spleen, "G" (Class XXV, Inter. 186)		2	2		1				2	1	50
pture, traumatic, spleen, "I" (Class XXV, Inter. 186)		1			1						0
pture, traumatic, spleen, "L" (Class XXV, Inter. 186)		1			1						0
pture, traumatic, tympanum, "E" (Class XXV, Inter. 186)		12	3	11					3	1	169
pture, traumatic, tympanum, "F" (Class XXV, Inter. 186)		6	3	6					2	1	98
pture, traumatic, tympanum, "G" (Class XXV, Inter. 186)		2		1						1	16
pture, traumatic, tympanum, "I" (Class XXV, Inter. 186)		1		1							13
pture, traumatic, tympanum, "J" (Class XXV, Inter. 186)		9	3	8					3	1	104
pture, traumatic, tympanum, "K" (Class XXV, Inter. 186)		18	2	15					4	1	45
pture, traumatic, tympanum, "L" (Class XXV, Inter. 186)		10	2	11					1		44
pture, traumatic, unqualified, "G" (Class XXV, Inter. 186)		1			1						6
pture, traumatic, unqualified, "H" (Class XXV, Inter. 186)			1	1							21
pture, traumatic, unqualified, "L" (Class XXV, Inter. 186)		3	1	3					1		28
pture, traumatic, urethra, "G" (Class XXV, Inter. 186)		4	8	4	3				4	1	149
pture, traumatic, urethra, "I" (Class XXV, Inter. 186)	1			1							49
pture, traumatic, urethra, "L" (Class XXV, Inter. 186)	1	2	1		1				2	1	25
oke inhalation, "C" (Class XXV, Inter. 186B)		16	13	15		2			12		69
oke inhalation, "F" (Class XXV, Inter. 186B)		2	2						2	2	44
oke inhalation, "K" (Class XXV, Inter. 186B)		56	29	25					55	5	1,259
oke inhalation, "L" (Class XXV, Inter. 186B)		4		3		1					4
rain, ankle, "F" (Class XXV, Inter. 185B)		5		4					1		17
rain, ankle, "G" (Class XXV, Inter. 185B)	15	878	205	844	40		4		158	43	10,403
rain, ankle, "GR" (Class XXV, Inter. 185B)		6	2	4	1				2	1	61
rain, ankle, "GS" (Class XXV, Inter. 185B)		1		1							6
rain, ankle, "H" (Class XXV, Inter. 185B)		19	2	19					2		122
rain, ankle, "HR" (Class XXV, Inter. 185B)		1		1							10
rain, ankle, "I" (Class XXV, Inter. 185B)	1	38	4	37	3				2	1	355
rain, ankle, "J" (Class XXV, Inter. 185B)	3	401	71	389	23		1		57	5	3,953
rain, ankle, "K" (Class XXV, Inter. 185B)		21	53	42					25	7	1,980
rain, ankle, "L" (Class XXV, Inter. 185B)	9	634	255	612	81		5		170	30	10,536
rain, ankle, "LR" (Class XXV, Inter. 185B)		2	1	2					1		91
rain, ankle, "LS" (Class XXV, Inter. 185B)		2		2							8
rain, elbow, "G" (Class XXV, Inter. 185B)	2	52	19	52	7				10	4	595

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1912—Continued.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IR.	R.	T.	Cont.
<b>INJURIES—Continued.</b>										
Sprain, elbow, "J" (Class XXV, Inter. 185B)		23	6	21	1				5	2
Sprain, elbow, "L" (Class XXV, Inter. 185B)	2	32	1	32	1				2	
Sprain, hip, "F" (Class XXV, Inter. 185B)		1	1				1		1	
Sprain, hip, "G" (Class XXV, Inter. 185B)		32	22	20	9		10		11	4
Sprain, hip, "GE" (Class XXV, Inter. 185B)		1	1	1					1	
Sprain, hip, "H" (Class XXV, Inter. 185B)		1							1	
Sprain, hip, "I" (Class XXV, Inter. 185B)		2	1	2					1	
Sprain, hip, "J" (Class XXV, Inter. 185B)		9		7	2		6		5	1
Sprain, hip, "K" (Class XXV, Inter. 185B)		1	5	4					2	
Sprain, hip, "L" (Class XXV, Inter. 185B)		45	38	24	9		15		25	10
Sprain, knee, "G" (Class XXV, Inter. 185B)	3	263	75	248	17		7		61	8
Sprain, knee, "GR" (Class XXV, Inter. 185B)		3	1	3					1	
Sprain, knee, "H" (Class XXV, Inter. 185B)		1	1	1	1					
Sprain, knee, "I" (Class XXV, Inter. 185B)		7	3	8					1	1
Sprain, knee, "J" (Class XXV, Inter. 185B)	2	206	80	207	14		4		32	10
Sprain, knee, "K" (Class XXV, Inter. 185B)		3	11	10	1				2	1
Sprain, knee, "L" (Class XXV, Inter. 185B)	1	175	77	166	21		2		50	11
Sprain, maxilla, "L" (Class XXV, Inter. 185B)			1	1						
Sprain, metacarpal, "G" (Class XXV, Inter. 185B)		16	2	15	2					1
Sprain, metacarpal, "H" (Class XXV, Inter. 185B)		2	1	1	1				1	
Sprain, metacarpal, "I" (Class XXV, Inter. 185B)		1		1						
Sprain, metacarpal, "J" (Class XXV, Inter. 185B)		20	2	11	2				1	
Sprain, metacarpal, "L" (Class XXV, Inter. 185B)		17		17						
Sprain, metatarsal, "G" (Class XXV, Inter. 185B)		28	6	27	4				3	
Sprain, metatarsal, "H" (Class XXV, Inter. 185B)		1		1						
Sprain, metatarsal, "I" (Class XXV, Inter. 185B)		7	1	6					2	
Sprain, metatarsal, "J" (Class XXV, Inter. 185B)		13	3	12	1				3	
Sprain, metatarsal, "K" (Class XXV, Inter. 185B)		1	2	3						
Sprain, metatarsal, "L" (Class XXV, Inter. 185B)	1	24	17	33	1				5	2
Sprain, multiple, "F" (Class XXV, Inter. 185B)			1							1
Sprain, multiple, "G" (Class XXV, Inter. 185B)		5	2	6	1					
Sprain, pelvis, "G" (Class XXV, Inter. 185B)		9	5	7					5	2
Sprain, pelvis, "GR" (Class XXV, Inter. 185B)		1							1	
Sprain, pelvis, "H" (Class XXV, Inter. 185B)		1	1	1					1	
Sprain, pelvis, "J" (Class XXV, Inter. 185B)		1		1						
Sprain, pelvis, "L" (Class XXV, Inter. 185B)	2	8	3	6	1				6	
Sprain, phalanges, foot, "C" (Class XXV, Inter. 185B)		1		1						
Sprain, phalanges, foot, "Q" (Class XXV, Inter. 185B)		4		3						1
Sprain, phalanges, foot, "I" (Class XXV, Inter. 185B)		1	2	2					1	
Sprain, phalanges, foot, "J" (Class XXV, Inter. 185B)		6		6						
Sprain, phalanges, foot, "L" (Class XXV, Inter. 185B)		11	5	16						

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1918—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Strain, neck, "L" (Class XXV, Inter. 186).....		11	2	10	2				1		106
Strain, shoulder, "G" (Class XXV, Inter. 186).....		7	2	8	1						66
Strain, shoulder, "H" (Class XXV, Inter. 186).....		1		1							4
Strain, shoulder, "I" (Class XXV, Inter. 186).....		1		1							7
Strain, shoulder, "J" (Class XXV, Inter. 186).....		6		4					2		17
Strain, shoulder, "L" (Class XXV, Inter. 186).....		13	5	14	2				2		130
Strain, thigh, "G" (Class XXV, Inter. 186).....		12	2	11					2	1	104
Strain, thigh, "J" (Class XXV, Inter. 186).....		24	1	23	1				1		134
Strain, thigh, "K" (Class XXV, Inter. 186).....			2	2							46
Strain, thigh, "L" (Class XXV, Inter. 186).....	1	26	9	27	2				6	1	246
Strain, unqualified, "G" (Class XXV, Inter. 186).....		7	6	8	3				2		71
Strain, unqualified, "J" (Class XXV, Inter. 186).....		2	2	2	1				1		5
Strain, unqualified, "L" (Class XXV, Inter. 186).....	3	10	7	9	1				8	2	142
Strain, wrist, "G" (Class XXV, Inter. 186).....		1		1							2
Strain, wrist, "J" (Class XXV, Inter. 186).....			1	1							2
Strain, wrist, "L" (Class XXV, Inter. 186).....		1		1							2
Strangulation, "A" (Class XXV, Inter. 186).....		7				7					0
Strangulation, "L" (Class XXV, Inter. 186).....		2				2					0
Submersion (nonfatal) "D" (Class XXV, Inter. 160A).....		31	8	29	1				9		188
Submersion (nonfatal) "DR" (Class XXV, Inter. 160A).....		1		1							3
Submersion (nonfatal) "G" (Class XXV, Inter. 160A).....		1		1							5
Submersion (nonfatal) "HR" (Class XXV, Inter. 160A).....		1		1							4
Submersion (nonfatal) "J" (Class XXV, Inter. 160A).....		1		1							10
Sunburn, arms, "L" (Class XXV, Inter. 167).....		11		11							58
Sunburn, back, "J" (Class XXV, Inter. 167).....		1	1	1					1		10
Sunburn, back, "L" (Class XXV, Inter. 167).....		4		4							14
Sunburn, face, "J" (Class XXV, Inter. 167).....		1	2	1	1				1		9
Sunburn, face, "L" (Class XXV, Inter. 167).....		6		6							5
Sunburn, feet, "J" (Class XXV, Inter. 167).....		1		1							1
Sunburn, feet, "L" (Class XXV, Inter. 167).....		2		2							8
Sunburn, general, "J" (Class XXV, Inter. 167).....		7	1	6					2		35
Sunburn, general, "L" (Class XXV, Inter. 167).....		11	2	11					2		62
Sunburn, head, "J" (Class XXV, Inter. 167).....		2		2							4
Sunburn, legs, "J" (Class XXV, Inter. 167).....		4		4							20
Sunburn, legs, "L" (Class XXV, Inter. 167).....		16	8	16					3		74
Sunburn, lower extremity, "J" (Class XXV, Inter. 167).....			1	1							2
Sunburn, lower extremity, "L" (Class XXV, Inter. 167).....		4	2	4					2		24
Sunburn, neck, "L" (Class XXV, Inter. 167).....		21	1	22							61
Sunburn, shoulders, "J" (Class XXV, Inter. 167).....		8	1	4							15
Sunburn, shoulders, "L" (Class XXV, Inter. 167).....		12		11					1		33
Sunburn, thigh, "J" (Class XXV, Inter. 167).....		1		1							2

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1918.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Co.
<b>INJURIES—Continued.</b>										
Strain, arm, "J" (Class XXV, Inter. 186)		4	1	5						
Strain, arm, "L" (Class XXV, Inter. 183)		2		2						
Strain, back, "G" (Class XXV, Inter. 186)	1	77	25	72	8		3		17	
Strain, back, "GR" (Class XXV, Inter. 186)		4		4						
Strain, back, "H" (Class XXV, Inter. 186)		6	3	4	2				2	
Strain, back, "I" (Class XXV, Inter. 183)		4	4	4					3	
Strain, back, "J" (Class XXV, Inter. 186)		31	8	32	2		1		4	
Strain, back, "K" (Class XXV, Inter. 186)		4	10	10					4	
Strain, back, "L" (Class XXV, Inter. 183)		279	99	261	38		10		56	
Strain, chest, "G" (Class XXV, Inter. 186)	1	1		2						
Strain, chest, "J" (Class XXV, Inter. 186)		6	2	6	1				1	
Strain, chest, "L" (Class XXV, Inter. 186)		11	4	12	1				2	
Strain, elbow, "G" (Class XXV, Inter. 186)		1		1						
Strain, elbow, "J" (Class XXV, Inter. 186)		1		1						
Strain, eve, "L" (Class XXV, Inter. 183)		2	2	3					1	
Strain, finger, "L" (Class XXV, Inter. 183)		1		1						
Strain, foot, "G" (Class XXV, Inter. 183)		1	2	2					1	
Strain, foot, "I" (Class XXV, Inter. 183)		1		1						
Strain, foot, "J" (Class XXV, Inter. 186)		3		3						
Strain, foot, "K" (Class XXV, Inter. 183)		1		1						
Strain, foot, "L" (Class XXV, Inter. 186)		15	7	16	1				3	
Strain, forearm, "G" (Class XXV, Inter. 186)		2	1	1					1	
Strain, forearm, "H" (Class XXV, Inter. 186)		1		1						
Strain, forearm, "J" (Class XXV, Inter. 186)		2		2						
Strain, forearm, "L" (Class XXV, Inter. 186)		3		3						
Strain, gluteal, "G" (Class XXV, Inter. 183)		2	1	1	1				1	
Strain, gluteal "L" (Class XXV, Inter. 186)	1	1		2						
Strain, hand, "L" (Class XXV, Inter. 183)		1		1						
Strain, hip, "G" (Class XXV, Inter. 186)		5	5	6	2				1	
Strain, hip, "J" (Class XXV, Inter. 186)		2	1	3						
Strain, hip, "K" (Class XXV, Inter. 186)			1	1						
Strain, hip, "L" (Class XXV, Inter. 186)		5	6	8	1				1	
Strain, knee, "G" (Class XXV, Inter. 186)		5		4	1					
Strain, knee, "J" (Class XXV, Inter. 186)		7		6					1	
Strain, knee, "L" (Class XXV, Inter. 186)		3	3	5					1	
Strain, leg, "G" (Class XXV, Inter. 186)	1	13	1	14					1	
Strain, leg, "J" (Class XXV, Inter. 186)		8	1	9						
Strain, leg, "L" (Class XXV, Inter. 186)		18	5	17	1				4	
Strain, neck, "G" (Class XXV, Inter. 186)		1		1						
Strain, neck, "I" (Class XXV, Inter. 186)		1		1						
Strain, neck, "J" (Class XXV, Inter. 186)		6	2	5	2				2	

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1918—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Strain, neck, "L" (Class XXV, Inter. 186).		11	2	10	2				1		105
Strain, shoulder, "G" (Class XXV, Inter. 186).		7	2	8	1						66
Strain, shoulder, "H" (Class XXV, Inter. 186).		1		1							4
Strain, shoulder, "I" (Class XXV, Inter. 186).		1		1							7
Strain, shoulder, "J" (Class XXV, Inter. 186).		6		4					2		17
Strain, shoulder, "L" (Class XXV, Inter. 186).		13	8	14	2				2		130
Strain, thigh, "G" (Class XXV, Inter. 186).		12	2	11					2	1	104
Strain, thigh, "J" (Class XXV, Inter. 186).		24	1	23	1				1		134
Strain, thigh, "K" (Class XXV, Inter. 186).			2	2							46
Strain, thigh, "L" (Class XXV, Inter. 186).	1	26	9	27	2				6	1	246
Strain, unqualified, "G" (Class XXV, Inter. 186).		7	6	8	3				2		71
Strain, unqualified, "J" (Class XXV, Inter. 186).		2	2	2	1				1		5
Strain, unqualified, "L" (Class XXV, Inter. 186).	3	10	7	9	1				8	2	142
Strain, wrist, "G" (Class XXV, Inter. 186).		1		1							2
Strain, wrist, "J" (Class XXV, Inter. 186).			1	1							2
Strain, wrist, "L" (Class XXV, Inter. 186).		1		1							2
Strangulation, "A" (Class XXV, Inter. 186).		7					7				0
Strangulation, "L" (Class XXV, Inter. 186).		2					2				0
Submersion (nonfatal) "D" (Class XXV, Inter. 100A).		31	8	29	1				9		188
Submersion (nonfatal) "DR" (Class XXV, Inter. 100A).		1		1							3
Submersion (nonfatal) "G" (Class XXV, Inter. 100A).		1		1							5
Submersion (nonfatal) "HR" (Class XXV, Inter. 100A).		1		1							4
Submersion (nonfatal) "J" (Class XXV, Inter. 100A).		1		1							10
Sunburn, arms, "L" (Class XXV, Inter. 167).		11		11							58
Sunburn, back, "J" (Class XXV, Inter. 167).		1	1	1					1		10
Sunburn, back, "L" (Class XXV, Inter. 167).		4		4							14
Sunburn, face, "J" (Class XXV, Inter. 167).		1	2	1	1				1		9
Sunburn, face, "L" (Class XXV, Inter. 167).		6		6							5
Sunburn, feet, "J" (Class XXV, Inter. 167).		1		1							1
Sunburn, feet, "L" (Class XXV, Inter. 167).		2		2							8
Sunburn, general, "J" (Class XXV, Inter. 167).		7	1	6					2		35
Sunburn, general, "L" (Class XXV, Inter. 167).		11	2	11					2		62
Sunburn, head, "J" (Class XXV, Inter. 167).		2		2							4
Sunburn, legs, "J" (Class XXV, Inter. 167).		4		4							20
Sunburn, legs, "L" (Class XXV, Inter. 167).		16	8	16					3		74
Sunburn, lower extremity, "J" (Class XXV, Inter. 167).			1	1							2
Sunburn, lower extremity, "L" (Class XXV, Inter. 167).		4	2	4					2		24
Sunburn, neck, "L" (Class XXV, Inter. 167).		21	1	22							61
Sunburn, shoulders, "J" (Class XXV, Inter. 167).		3	1	4							15
Sunburn, shoulders, "L" (Class XXV, Inter. 167).		12		11					1		33
Sunburn, thigh, "J" (Class XXV, Inter. 167).		1		1							2

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1918—C

Diagnosis.	Rem.	A.	R.A.	D.	C.	DD.	IS.	R.	T.	Cont.
<b>INJURIES—Continued.</b>										
Sunburn, thigh, "L" (Class XXV, Inter. 167).....		1		1						
Sunburn, unqualified, "J".....		1		1						
Sunburn, unqualified, "L".....		5		5						
Sunburn, upper extremity, "J".....		2		2						
Sunburn, upper extremity, "L".....		9		9						
Sunstroke "L" (Class XXV, Inter. 179B).....	1	31	22	27	4	1	4		18	
Synovitis, traumatic, ankle, "G".....		8	2	7	1					2
Synovitis, traumatic, ankle, "I".....	1	1			1				1	
Synovitis, traumatic, ankle, "J".....		5		4			1			
Synovitis, traumatic, ankle, "L".....		6	4	2	2		2		3	
Synovitis, traumatic, elbow, "G".....		1		1						
Synovitis, traumatic, elbow, "J".....		1		1						
Synovitis, traumatic, elbow, "L".....		7	1	5	2				1	
Synovitis, traumatic, finger, "H".....		1	1						1	1
Synovitis, traumatic, finger, "J".....		1	1	1	1					
Synovitis, traumatic, finger, "L".....		2	2	2					2	
Synovitis, traumatic, foot, "H".....			1	1						
Synovitis, traumatic, foot, "J".....		1		1						
Synovitis, traumatic, foot, "L".....		1	2	1	1				1	1
Synovitis, traumatic, hand, "H".....		1							1	
Synovitis, traumatic, hand, "L".....			6	2	2				1	
Synovitis, traumatic, hip, "G".....		2		2						
Synovitis, traumatic, hip, "L".....		1	2	2					1	
Synovitis, traumatic, knee, "E".....		1	1	1					1	
Synovitis, traumatic, knee, "G".....	6	195	110	170	20		11		80	21
Synovitis, traumatic, knee, "H".....	1	7	2	7			1		2	
Synovitis, traumatic, knee, "I".....		4	1	3	1				1	
Synovitis, traumatic, knee, "J".....	2	96	61	92	7		10		42	8
Synovitis, traumatic, knee, "K".....	1		6	1	1		1		5	2
Synovitis, traumatic, knee, "L".....	11	137	96	134	11		15		71	13
Synovitis, traumatic, shoulder, "H" (Class XXV, Inter. 156).....		1		1						
Synovitis, traumatic, shoulder, "L" (Class XXV, Inter. 156).....		1		1						
Synovitis, traumatic, toe, "I".....		1			1					
Synovitis, traumatic, toe, "L".....			1	1						
Synovitis, traumatic, unqualified, "G" (Class XXV, Inter. 186).....		7	1	3					5	
Synovitis, traumatic, unqualified, "J" (Class XXV, Inter. 186).....		1		1						
Synovitis, traumatic, unqualified, "L" (Class XXV, Inter. 186).....		12	2	6	2				7	
Synovitis, traumatic, vertebral-cervical, "G" (Class XXV, Inter. 186).....		1		1						
Synovitis, traumatic, wrist, "G" (Class XXV, Inter. 186).....		2		2						

## Table 1.—Detailed statement of diseases and injuries for the calendar year 1918—Contd.

Diagnoses.	Rem.	A.	R.A.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
is, traumatic, wrist, "H"											
XXV, Inter. 186)		1		1							5
is, traumatic, wrist, "J"											
XXV, Inter. 186)		1		1							4
is, traumatic, wrist, "L"											
XXV, Inter. 186)	1	1	1	1			1		1		38
fever, "L" (Class XXV, Inter. 179A)			12	3	12	1			2		51
spermatic cord, traumatic, "G" (Class XXV, Inter. 186)									1	1	15
spermatic cord, traumatic, "L" (Class XXV, Inter. 186)											
foot, "K" (Class XXV, Inter. 178)		3	1	2	1				1		5
foot, "L" (Class XXV, Inter. 178)			10		6				2	2	206
abdomen, gunshot, "A"			6	7						2	388
XXV, Inter. 170)	1	2					3				97
abdomen, gunshot, "B"											
XXV, Inter. 170)		3		1					2		1
abdomen, gunshot, "E"											
XXV, Inter. 170)		6	2	1			2	1	4		1
abdomen, gunshot, "F"											
XXV, Inter. 170)	1			1							6
abdomen, gunshot, "K"											
XXV, Inter. 170)	249	91	44	32	111				135	18	4,376
abdomen, gunshot, "L"											
XXV, Inter. 170)	3	1	4								103
abdomen, incised, "B"											
XXV, Inter. 171)	2	3	2	1	1						47
abdomen, incised, "G"											
XXV, Inter. 171)	1			1							26
abdomen, incised, "H"											
XXV, Inter. 171)	1									1	4
abdomen, incised, "L"											
XXV, Inter. 171)	9	2	8	1					2		144
abdomen, lacerated, (Class XXV, Inter. 186)											
abdomen, lacerated, (Class XXV, Inter. 186)	3		1						2		3
abdomen, lacerated, (Class XXV, Inter. 186)	2	1	2						1	1	12
abdomen, lacerated, (Class XXV, Inter. 186)	2	2	2	1					1		53
abdomen, lacerated, (Class XXV, Inter. 186)	1										18
abdomen, lacerated, (Class XXV, Inter. 186)	1								1		0
abdomen, lacerated, (Class XXV, Inter. 186)	1			1							13
abdomen, lacerated, (Class XXV, Inter. 186)	1	46	18	2	1				21	5	1,136
abdomen, lacerated, (Class XXV, Inter. 186)	2	1	2						1		72
abdomen, punctured, (Class XXV, Inter. 171)	1	1			1				1		2
abdomen, punctured, (Class XXV, Inter. 171)	8	3	4	1					6		67
abdomen, punctured, (Class XXV, Inter. 171)	3	2	1	1	1				2		73
abdomen, punctured, (Class XXV, Inter. 171)	3	1	1						2	1	130
abdomen, punctured, (Class XXV, Inter. 171)	1					1					28
abdomen, punctured, (Class XXV, Inter. 171)	3			3							19
abdomen, punctured, (Class XXV, Inter. 171)	2	36	12				1		18	6	1,738
abdomen, punctured, (Class XXV, Inter. 171)	1	5	4	7					1	2	127
an's, gunshot, "E"											
XXV, Inter. 170)	4	4	1			1			5	1	379
an's, gunshot, "K"											
XXV, Inter. 170)	69	76	33			1			98	12	4,167
an's, gunshot, "L"											
XXV, Inter. 170)	1	1	1						1		95
an's, incised, "C"											
XXV, Inter. 171)	1								1		0
an's, incised, "L"											
XXV, Inter. 171)	6	1	7								58
an's, lacerated, "E"											
XXV, Inter. 186)			3	1					1		147



TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1918—

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Con.
<b>INJURIES—Continued.</b>										
Wound, ankle, lacerated, "G"										
(Class XXV, Inter. 186)		2	2	3				1		
Wound, ankle, lacerated, "H"										
(Class XXV, Inter. 186)		1		1						
Wound, ankle, lacerated, "I"										
(Class XXV, Inter. 186)		1		1						
Wound, ankle, lacerated, "J"										
(Class XXV, Inter. 186)		1		2					2	
Wound, ankle, lacerated, "K"	1	1	3	7						
(Class XXV, Inter. 186)		1	33	7					14	
Wound, ankle, lacerated, "L"										
(Class XXV, Inter. 186)		12	1	11					1	
Wound, ankle, punctured, "E"										
(Class XXV, Inter. 171)		1	2	2					1	
Wound, ankle, punctured, "G"										
(Class XXV, Inter. 171)		1		1						
Wound, ankle, punctured, "K"										
(Class XXV, Inter. 171)			17	4					8	
Wound, ankle, punctured, "L"										
(Class XXV, Inter. 171)		2	1	2						
Wound, arm, gunshot, "A"										
(Class XXV, Inter. 170)			1	1						
Wound, arm, gunshot, "B"										
(Class XXV, Inter. 170)			2	2						
Wound, arm, gunshot, "E"										
(Class XXV, Inter. 170)		8	6	5				1	8	
Wound, arm, gunshot, "K"										
(Class XXV, Inter. 170)		463	452	189	8	10		2	638	
Wound, arm, incised, "G"										
(Class XXV, Inter. 171)		4		4						
Wound, arm, incised, "K"										
(Class XXV, Inter. 171)		1	2	1					2	
Wound, arm, incised, "L"										
(Class XXV, Inter. 171)	1	9	2	11	1					
Wound, arm, lacerated, "E"										
(Class XXV, Inter. 186)		9	1	1					9	
Wound, arm, lacerated, "F"										
(Class XXV, Inter. 186)	1	5	1	5					2	
Wound, arm, lacerated, "G"										
(Class XXV, Inter. 186)	1	9	1	8					3	
Wound, arm, lacerated, "H"										
(Class XXV, Inter. 186)	1	4	4	5					3	
Wound, arm, lacerated, "I"										
(Class XXV, Inter. 186)		1	1	1					1	
Wound, arm, lacerated, "J"										
(Class XXV, Inter. 186)			2						2	
Wound, arm, lacerated, "K"										
(Class XXV, Inter. 186)		11	182	52				3	79	
Wound, arm, lacerated, "L"										
(Class XXV, Inter. 186)		20	8	20					7	
Wound, arm, punctured, "E"										
(Class XXV, Inter. 171)			1						1	
Wound, arm, punctured, "F"										
(Class XXV, Inter. 171)		2		1		1				
Wound, arm, punctured, "G"										
(Class XXV, Inter. 171)			1	1						
Wound, arm, punctured, "H"										
(Class XXV, Inter. 171)		1							1	
Wound, arm, punctured, "J"										
(Class XXV, Inter. 171)			2						2	
Wound, arm, punctured, "K"										
(Class XXV, Inter. 171)		1	107	45	1				33	
Wound, arm, punctured, "L"										
(Class XXV, Inter. 171)		5	3	4					3	
Wound, back, gunshot, "B"										
(Class XXV, Inter. 170)		3		1	2					
Wound, back, gunshot, "E"										
(Class XXV, Inter. 170)		5	2	4	1	1			1	
Wound, back, gunshot, "K"										
(Class XXV, Inter. 170)		12	136	68	15	39			202	
Wound, back, lacerated, "E"										
(Class XXV, Inter. 186)		3							3	
Wound, back, lacerated, "F"										
(Class XXV, Inter. 186)		1	1	1					1	
Wound, back, lacerated, "G"										
(Class XXV, Inter. 186)		1		1						
Wound, back, lacerated, "I"										
(Class XXV, Inter. 186)			1	1						
Wound, back, lacerated, "K"										
(Class XXV, Inter. 186)		2	48	22					16	
Wound, back, lacerated, "L"										
(Class XXV, Inter. 186)		2		2						



TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1918.—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
INJURIES—Continued.											
nd, back, punctured, "B"											
ss XXV, Inter. 171)		1		1							18
nd, back, punctured, "E"											
ss XXV, Inter. 171)		1							1		0
nd, back, punctured, "Q"											
ss XXV, Inter. 171)		1		1							43
nd, back, punctured, "K"											
ss XXV, Inter. 171)		1	24	15	1				5	4	892
nd, back, punctured, "L"											
ss XXV, Inter. 171)		3	3	3					2	1	93
nd, bladder, lacerated, "G"											
ss XXV, Inter. 186)		1		1							26
nd, bladder, lacerated, "L"											
ss XXV, Inter. 186)		1		1							5
nd, ear, gunshot, "K"											
ss XXV, Inter. 170)		7	10	9					8		238
nd, ear, incised, "L" (Class V, Inter. 171)											
ss XXV, Inter. 171)		2		1					1		9
nd, ear, lacerated, "E"											
ss XXV, Inter. 180)			1	1							12
nd, ear, lacerated, "F"											
ss XXV, Inter. 180)		2	5	5					2		52
nd, ear, lacerated, "G"											
ss XXV, Inter. 180)	1	6		6					1		31
nd, ear, lacerated, "H"											
ss XXV, Inter. 186)		1		1							11
nd, ear, lacerated, "I"											
ss XXV, Inter. 186)			1							1	11
nd, ear, lacerated, "K"											
ss XXV, Inter. 186)		1		1							1
nd, ear, lacerated, "L"											
ss XXV, Inter. 180)	11	1	11						1		67
nd, ear, punctured, "K"											
ss XXV, Inter. 171)			2	2					1		26
nd, elbow, gunshot, "B"											
ss XXV, Inter. 170)	1	1	1	1					1		21
nd, elbow, gunshot, "E"											
ss XXV, Inter. 170)	4	5	1				1		7		220
nd, elbow, gunshot, "K"											
ss XXV, Inter. 170)	36	75	25						79	7	2,919
nd, elbow, gunshot, "L"											
ss XXV, Inter. 170)			1	1							21
nd, elbow, incised, "A"											
ss XXV, Inter. 171)	2	2	1	1					2		33
nd, elbow, incised, "L"											
ss XXV, Inter. 171)	2		2								32
nd, elbow, lacerated, "E"											
ss XXV, Inter. 186)			1						1		4
nd, elbow, lacerated, "G"											
ss XXV, Inter. 186)	11		10						1		58
nd, elbow, lacerated, "H"											
ss XXV, Inter. 186)			1								3
nd, elbow, lacerated, "HR"											
ss XXV, Inter. 186)	1		1								3
nd, elbow, lacerated, "I"											
ss XXV, Inter. 186)	1		1								11
nd, elbow, lacerated, "K"											
ss XXV, Inter. 186)			23	4					8	11	958
nd, elbow, lacerated, "L"											
ss XXV, Inter. 186)	1	1	1	1					1		27
nd, elbow, punctured, "E"											
ss XXV, Inter. 171)	1								1		0
nd, elbow, punctured, "G"											
ss XXV, Inter. 171)	1		1								1
nd, elbow, punctured, "I"											
ss XXV, Inter. 171)	1									1	8
nd, elbow, punctured, "K"											
ss XXV, Inter. 171)			17	5	2				4	6	819
nd, eye, gunshot, "F"											
ss XXV, Inter. 170)			4		4						194
nd, eye, gunshot, "K"											
ss XXV, Inter. 170)	29	32	13	2	1	1			38	6	1,435
nd, eye, gunshot, "L"											
ss XXV, Inter. 170)	2		1							1	20
nd, eye, incised, "F"											
ss XXV, Inter. 171)	2	1	2						1		10
nd, eye, incised, "G"											
ss XXV, Inter. 171)	3		2						1		2
nd, eye incised, "H" (Class V, Inter. 171)											
ss XXV, Inter. 171)	3		2						1		10
nd, eye incised, "L" (Class V, Inter. 171)											
ss XXV, Inter. 171)	10	8	8	1			2		5	2	216

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1911

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.
<b>INJURIES—Continued.</b>									
Wound, eye, lacerated, "B" (Class XXV, Inter. 186)		1		1					
Wound, eye, lacerated, "E" (Class XXV, Inter. 186)		4	6	3			3		3
Wound, eye, lacerated, "F" (Class XXV, Inter. 186)	2	9	6	8	2		3		4
Wound, eye, lacerated, "G" (Class XXV, Inter. 186)		23	5	23					4
Wound, eye, lacerated, "H" (Class XXV, Inter. 186)		8		7					1
Wound, eye, lacerated, "HR" (Class XXV, Inter. 186)		1		1					
Wound, eye, lacerated, "HS" (Class XXV, Inter. 186)		1		1					
Wound, eye, lacerated, "I" (Class XXV, Inter. 186)		2	1	2					1
Wound, eye, lacerated, "J" (Class XXV, Inter. 186)		9	1	7			1		2
Wound, eye, lacerated, "K" (Class XXV, Inter. 186)		2	27	4	1				14
Wound, eye, lacerated, "L" (Class XXV, Inter. 186)	2	55	29	55	7				19
Wound, eye, punctured, "B" (Class XXV, Inter. 171)		1				1			
Wound, eye, punctured, "E" (Class XXV, Inter. 171)		1	1				1		1
Wound, eye, punctured, "F" (Class XXV, Inter. 171)		2	5	1	2		1		1
Wound, eye, punctured, "G" (Class XXV, Inter. 171)		1		1					
Wound, eye, punctured, "H" (Class XXV, Inter. 171)		1		1					
Wound, eye, punctured, "K" (Class XXV, Inter. 171)		4	13	1					8
Wound, eye, punctured, "L" (Class XXV, Inter. 171)	1	17	15	8	2		5		15
Wound, face, gunshot, "A" (Class XXV, Inter. 170)		1	1		1				1
Wound, face, gunshot, "B" (Class XXV, Inter. 170)		1							1
Wound, face, gunshot, "E" (Class XXV, Inter. 170)		3	2	4	1				
Wound, face, gunshot, "F" (Class XXV, Inter. 170)		25	4	17	2				10
Wound, face, gunshot, "K" (Class XXV, Inter. 170)		141	92	49	4	1			169
Wound, face, incised, "A" (Class XXV, Inter. 171)			2	1	1				
Wound, face, incised, "B" (Class XXV, Inter. 171)		2	1	2					1
Wound, face, incised, "F" (Class XXV, Inter. 171)		1		1					
Wound, face, incised, "G" (Class XXV, Inter. 171)		5	2	5					2
Wound, face, incised, "GR" (Class XXV, Inter. 171)		1		1					
Wound, face, incised, "H" (Class XXV, Inter. 171)		2		2					
Wound, face, incised, "HR" (Class XXV, Inter. 171)		1		1					
Wound, face, incised, "J" (Class XXV, Inter. 171)		3	1	3					1
Wound, face, incised, "L" (Class XXV, Inter. 171)		10	5	12					3
Wound, face, lacerated, "B" (Class XXV, Inter. 183)		1		1					
Wound, face, lacerated, "E" (Class XXV, Inter. 183)		4		1					2
Wound, face, lacerated, "F" (Class XXV, Inter. 183)		3	1	3	1				
Wound, face, lacerated, "G" (Class XXV, Inter. 183)		32		29					2
Wound, face, lacerated, "GR" (Class XXV, Inter. 183)		8	3	5					4
Wound, face, lacerated, "GS" (Class XXV, Inter. 183)		1		1					
Wound, face, lacerated, "H" (Class XXV, Inter. 183)		3	1	3					
Wound, face, lacerated, "HR" (Class XXV, Inter. 183)		1		1					
Wound, face, lacerated, "I" (Class XXV, Inter. 183)		4		3					1

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1918.—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
ound, face, lacerated, "J" (Class XXV, Inter. 186)		1	1	2							37
ound, face, lacerated, "K" (Class XXV, Inter. 186)		2	51	29	2				18	4	1,468
ound, face, lacerated, "L" (Class XXV, Inter. 186)		43	12	46	2				7		263
ound, face, lacerated, "LR" (Class XXV, Inter. 186)			1	1							1
ound, face, punctured, "E" (Class XXV, Inter. 171)		1							1		0
ound, face, punctured, "F" (Class XXV, Inter. 171)		2		1					1		98
ound, face, punctured, "GR" (Class XXV, Inter. 171)		1		1							1
ound, face, punct red, "L" (Class XXV, Inter. 171)			23	9					10	4	610
ound, face, punctured, "K" (Class XXV, Inter. 171)		2		2							5
ound, finger, gunshot, "B" (Class XXV, Inter. 170)	1	1	1	1	1				1		157
ound, finger, gunshot, "E" (Class XXV, Inter. 170)	2	22	11	21	2		2		8	2	773
ound, finger, gunshot, "F" (Class XXV, Inter. 170)		1		1							7
ound, finger, gunshot, "K" (Class XXV, Inter. 170)		18	79	56	4				20	8	3,134
ound, finger, gunshot, "L" (Class XXV, Inter. 170)		3		2					1		3
ound, finger, incised, "G" (Class XXV, Inter. 171)		2		2							11
ound, finger, incised, "H" (Class XXV, Inter. 171)	2	32	8	30	1				7	4	717
ound, finger, incised, "T" (Class XXV, Inter. 171)		7		5					1	1	87
ound, finger, incised, "L" (Class XXV, Inter. 171)	3	107	32	111	4		2		22	3	2,193
ound, finger, lacerated, "C" (Class XXV, Inter. 186)		1	4	5							5
ound, finger, lacerated, "L" (Class XXV, Inter. 186)		6	7	4					7	2	114
ound, finger, lacerated, "IS" (Class XXV, Inter. 186)			2	1					1		48
ound, finger, lacerated, "F" (Class XXV, Inter. 186)		2	7	5					4		296
ound, finger, lacerated, "G" (Class XXV, Inter. 186)		21	4	18	2				3	2	492
ound, finger, lacerated, "H" (Class XXV, Inter. 186)	8	267	48	256	9		1		44	13	8,421
ound, finger, lacerated, "HR" (Class XXV, Inter. 186)		4		3					1		13
ound, finger, lacerated, "I" (Class XXV, Inter. 186)	6	171	20	173	2				17	5	2,892
ound, finger, lacerated, "J" (Class XXV, Inter. 186)		11	3	14							215
ound, finger, lacerated, "K" (Class XXV, Inter. 186)		1	41	30					7	5	1,463
ound, finger, lacerated, "L" (Class XXV, Inter. 186)	7	210	42	203	3		2	1	38	12	3,440
ound, finger, lacerated, "LS" (Class XXV, Inter. 186)		1		1							2
ound, finger, punctured, "E" (Class XXV, Inter. 171)			1						1		64
ound, finger, punctured, "K" (Class XXV, Inter. 171)			10	7						3	588
ound, finger, punctured, "L" (Class XXV, Inter. 171)	1	16	2	16	1				2		149
ound, foot, gunshot, "B" (Class XXV, Inter. 170)	1								1		76
ound, foot, gunshot, "E" (Class XXV, Inter. 170)	4	37	48	33	2		7		41	6	3,072
ound, foot, gunshot, "K" (Class XXV, Inter. 170)		229	258	114	4		2		230	37	3,294
ound, foot, gunshot, "L" (Class XXV, Inter. 170)		3	7	2	1		1		6		135
ound, foot, incised, "E" (Class XXV, Inter. 171)	1		1	1					1		21
ound, foot, incised, "G" (Class XXV, Inter. 171)		1							1		0
ound, foot, incised, "I" (Class XXV, Inter. 171)		1	1						2		107
ound, foot, incised, "J" (Class XXV, Inter. 171)		7	1	7					1		9

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1918—Co

Diagnoses.	Rem.	A.	R.A.	D.	C.	DD.	IS.	R.	T.	Cont.
<b>INJURIES—Continued.</b>										
Wound, foot, incised, "K"										
(Class XXV, Inter. 171).....		1	1		1				1	
Wound, foot, incised, "L" (Class	1	55	16	61	1		2		5	3
XXV, Inter. 171).....										
Wound, foot, lacerated, "E"										
(Class XXV, Inter. 186).....		14	3	2					12	3
Wound, foot, lacerated, "G"										
(Class XXV, Inter. 186).....		16	1	16					1	
Wound, foot, lacerated, "H"										
(Class XXV, Inter. 186).....		7	6	8	1		1		3	
Wound, foot, lacerated, "I"										
(Class XXV, Inter. 186).....	1	27	11	26	2		1		9	1
Wound, foot, lacerated, "J"										
(Class XXV, Inter. 186).....		21	2	21					2	
Wound, foot, lacerated, "K"										
(Class XXV, Inter. 186).....		7	113	38	2		2		43	35
Wound, foot, lacerated, "L"										
(Class XXV, Inter. 186).....	2	81	21	78	8				12	6
Wound, foot, punctured, "E"										
(Class XXV, Inter. 171).....		5	7	5			1		2	4
Wound, foot, punctured, "F"										
(Class XXV, Inter. 171).....			1						1	
Wound, foot, punctured, "G"										
(Class XXV, Inter. 171).....		7		7						
Wound, foot, punctured, "H"										
(Class XXV, Inter. 171).....		1		1						
Wound, foot, punctured, "I"										
(Class XXV, Inter. 171).....		3		3						
Wound, foot, punctured, "J"										
(Class XXV, Inter. 171).....		2		2						
Wound, foot, punctured, "K"										
(Class XXV, Inter. 171).....		5	62	29					23	15
Wound, foot, punctured, "L"										
(Class XXV, Inter. 171).....	1	367	57	372	4				41	8
Wound, forearm, gunshot, "B"										
(Class XXV, Inter. 170).....		2	1	1					2	
Wound, forearm, gunshot, "E"										
(Class XXV, Inter. 170).....	1	11	11	8			4		10	1
Wound, forearm, gunshot, "ER"										
(Class XXV, Inter. 170).....			1	1						
Wound, forearm, gunshot, "F"										
(Class XXV, Inter. 170).....		2	3		3				2	
Wound, forearm, gunshot, "K"										
(Class XXV, Inter. 170).....		64	230	88	4	1	1	1	174	25
Wound, forearm, incised, "A"										
(Class XXV, Inter. 171).....	1	1	2		1		1		2	
Wound, forearm, incised, "B"										
(Class XXV, Inter. 171).....		1							1	
Wound, forearm, incised, "G"										
(Class XXV, Inter. 171).....		4	1	3					2	
Wound, forearm, incised, "H"										
(Class XXV, Inter. 171).....		1	1	1	1					
Wound, forearm, incised, "L"										
(Class XXV, Inter. 171).....	1	24	4	24			1		4	
Wound, forearm, lacerated, "A"										
(Class XXV, Inter. 186).....		1		1						
Wound, forearm, lacerated, "B"										
(Class XXV, Inter. 186).....			1						1	
Wound, forearm, lacerated, "E"										
(Class XXV, Inter. 186).....		1	2						1	2
Wound, forearm, lacerated, "F"										
(Class XXV, Inter. 186).....		1	6	6	1					
Wound, forearm, lacerated, "G"										
(Class XXV, Inter. 186).....		8	3	7	1				3	
Wound, forearm, lacerated, "H"										
(Class XXV, Inter. 186).....		11		8	1				2	
Wound, forearm, lacerated, "I"										
(Class XXV, Inter. 186).....		1		1						
Wound, forearm, lacerated, "J"										
(Class XXV, Inter. 186).....			1						1	
Wound, forearm, lacerated, "K"										
(Class XXV, Inter. 186).....			102	32	1				41	28
Wound, forearm, lacerated, "L"										
(Class XXV, Inter. 186).....		19	2	16					2	3
Wound, forearm, punctured, "E"										
(Class XXV, Inter. 171).....		1							1	
Wound, forearm, punctured, "H"										
(Class XXV, Inter. 171).....		1		1						
Wound, forearm, punctured, "K"										
(Class XXV, Inter. 171).....		3	59	23	2				22	15

of the personnel for the calendar year 1918, by classified admissions and  
 ided rates, suicides and suicide rates, and sick days—Continued.

Miscellaneous force.			Seaman branch.			Totals for all occupations.				Class No.
es.	Musi- cians.	Prison- ers.	Appren- tices.	Ord- nance.	All others.	Number.	Deaths.	Invali- ded from service.	Sick days.	
375	209	166	1,043	362	8,435	33,061	3,271	499	860,547	25
17	\$3.10	\$3.07	44.84	\$1.57	\$3.18	65.66	6.49	0.99	.....	26
535	10	18	26	13	252	2,382	98	52	84,581	26
15	1.11	6.84	1.12	0.77	1.66	4.78	0.19	0.10	.....	
744	3,781	3,286	32,358	3,589	123,111	391,078	9,307	11,990	6,327,821	27
41	417.84	1,248.48	1,391.14	\$13.86	761.54	776.87	18.47	\$3.79	.....	
137	54	35	765	99	2,348	9,307	.....	.....	.....	28
10	5.97	13.30	\$3.89	5.90	14.62	18.47	.....	.....	.....	29
17	1	.....	1	4	18	74	.....	.....	.....	
30	0.11	.....	0.04	0.24	0.11	0.15	.....	.....	.....	30
396	97	183	1,902	60	3,597	11,990	.....	.....	.....	
85	10.78	69.63	81.77	3.58	\$3.55	\$3.79	.....	.....	.....	
573	56,149	57,479	543,117	57,328	1,767,701	6,327,821	.....	.....	.....	31



## DEATHS

TABLE 3.—Casualties in the Navy and Marine Corps during the calendar year 1918.

Cause.		Number.	Navy.		Marine Corps.
Primary.	Secondary.		Officers.	Men.	Officers.
DISEASE.					
Abscess of brain.....		5			5
Abscess of liver.....		3			2
Abscess of lung.....		7			6
Abscess, subphrenic.....		1			1
Abscess, unqualified.....		1			1
Do.....	Cellulitis.....	1			1
Addison's disease.....		1			1
Anemia, pernicious.....		2			1
Anemia, splenic.....		1			1
Aneurism.....		5			4
Angina ludovici.....		2			2
Angina pectoris.....		6	3		3
Anthrax.....		2			2
Antinoeculation, unqualified.....		1			1
Do.....	Status lymphaticus.....	1	1		
Apoplexy.....		4	1		2
Appendicitis, acute.....		32	1		28
Do.....	Peritonitis, acute general.....	8	1		7
Do.....	Pneumonia, broncho.....	2	1		1
Do.....	Pneumonia, lobar.....	1			1
Do.....	Dilatation, acute cardiac.....	1			1
Appendicitis, chronic.....		4			3
Do.....	Peritonitis, acute general.....	1			1
Bronchitis, acute.....	Dilatation, acute cardiac.....	1			1
Carbuncle.....		2			1
Carcinoma.....		7	2		4
Cellulitis.....		5			4
Do.....	Septicemia.....	1			1
Cerebro-spinal fever.....		205	1		181
Cholangitis, acute.....		2			2
Cholera, Asiatic.....		1			1
Cirrhosis of liver, atrophic.....		2	1		1
Cirrhosis of liver, hypertrophic.....		1			1
Dementia, paralytica.....		5			5
Dementia, praecox.....		3			2
Diabetes mellitus.....		11	3		7
Dilatation, acute cardiac.....		16	1		14
Dilatation of stomach, acute.....		3			2
Diphtheria.....		36	1		35
Do.....	Endocarditis, acute.....	1			1
Do.....	Heart block.....	1			1
Do.....	Myocarditis, acute.....	3			3
Do.....	Nephritis, acute.....	2			2
Do.....	Paralysis of nerve.....	2			2
Do.....	Pleurisy, suppurative.....	1			1
Do.....	Pneumonia, lobar.....	2			2
Dysentery, unclassified.....		1	1		
Edema of lung.....		2			2
Embolism.....		6	2		4
Encephalitis, acute.....		2			2
Endocarditis, acute.....		7	1		6
Endocarditis, chronic.....		5	1		4
Enteritis, acute.....		1			1
Enterocolitis.....		1	1		
Epilepsy.....		4			4
Erysipelas.....		5			5
Do.....	Pemphigus.....	1			1
Do.....	Septicemia.....	1			1
Fibroma.....		1			1
Fistula, fecal.....		1			1
Gastroenteritis.....		1			1
Do.....	Shock.....	1			1
Glioma.....		2			2
Gonococcus infection of joints.....		1			1
Heart block.....		1			1
Hemiplegia, old.....		1			1
Hemophilia.....		1			
Hemorrhage into cerebellum.....		1			1
Hemorrhage into cerebrum.....		7	2		5
Hemorrhage, subdural.....		2			2
Hernia, inguinal.....	Shock.....	1			1

## DEATHS—Continued.

TABLE 3.—Casualties in the Navy and Marine Corps during the calendar year 1918—Continued.

Cause.		Number.	Navy.		Marine Corps.	
Primary.	Secondary.		Officers.	Men.	Officers.	Men.
DISEASE—continued.						
Angina, lingual.....	Poison, ether, anesthesia.....	1		1		
Angina, internal.....		1		1		
Cephalalgia, acquired.....		1		1		
Edema of lungs.....		1		1		
Erysipelas.....	Pneumonia, broncho.....	930	24	824	2	70
	Pneumonia, lobar.....	2,448	95	2,021	15	312
		732	56	620	4	52
	Abscess of kidney.....	1		1		
	Dilatation, acute, cardiac.....	2		1		1
	Edema of lung.....	1		1		
	Embolism.....	1				1
	Meningitis, cerebro-spinal.....	25		19		6
	Nephritis, acute.....	5		3		2
	Neuritis, optic.....	1				1
	Pleurisy, serofibrinous.....	2		2		
	Pleurisy, suppurative.....	17		16		1
	Sinusitis, frontal.....	1		1		
	Septicemia.....	5		4		1
	Erysipelas.....	1		1		
	Pyopneumothorax.....	1				1
Glottitis, acute.....		1		1		
	Edema of glottis.....	1		1		
Angina.....		3		3		
Angina.....		4		2		2
Glottitis, acute.....		5		5		1
Septicemia.....		23		23		
Septicemia.....	Cerebro-spinal fever.....	1		1		
Septicemia.....	Influenza.....	1		1		
Septicemia.....	Pleurisy, suppurative.....	7		7		
Septicemia.....	Pneumonia, broncho.....	69		66		3
Septicemia.....	Pneumonia, lobar.....	11		10		1
Septicemia.....		11	1	9		1
Septicemia.....		40		36		4
Septicemia.....	Mastoiditis, acute.....	1		1		
Septicemia.....		1		1		
Septicemia.....	Benign tumor.....	1	1			
Septicemia.....	Malignant tumor.....	1		1		
Septicemia.....		1		1		
Septicemia.....	Abscess, unqualified.....	1		1		
Septicemia.....	Pneumonia, lobar.....	1		1		
Septicemia.....		1	1			
Septicemia.....		2		1		1
Septicemia.....		2		1		1
Septicemia.....		2	1			1
Septicemia.....		19		16		3
Septicemia.....	Pneumonia, broncho.....	1		1		
Septicemia.....		10	2	7		1
Septicemia.....	Influenza.....	1		1		
Septicemia.....		7	2	5		
Septicemia.....		12		11		1
Septicemia.....		1				1
Septicemia.....	Septicemia.....	1		1		
Septicemia.....		2		2		
Septicemia.....		4		4		
Septicemia.....		9	1	7		1
Septicemia.....		1				1
Septicemia.....	Edema of glottis.....	1				1
Septicemia.....		3		3		
Septicemia.....		3		2		1
Septicemia.....		40		37		3
Septicemia.....	Myocarditis, acute.....	1		1		
Septicemia.....		151	5	133	1	12
Septicemia.....	Pericarditis.....	1		1		
Septicemia.....	Nephritis.....	1		1		
Septicemia.....	Pleurisy, suppurative.....	2		2		
Septicemia.....	Valvular disease, chronic, cardiac.....	1		1		
Septicemia.....		530	18	464	2	46
Septicemia.....	Abscess of lung.....	1		1		
Septicemia.....	Endocarditis, acute.....	1		1		



## DEATHS—Continued.

TABLE 3.—Casualties in the Navy and Marine Corps during the calendar year 1918—Continued.

Cause.		Number.	Navy.		Marine Corps.
Primary.	Secondary.		Officers.	Men.	Officers.
DISEASE—Continued.					
Pneumonia, lobar	Dilatation, acute cardiac	1		1	
Do	Meningitis, cerebro-spinal	3		3	
Do	Myocarditis, acute	1		1	
Do	Nephritis, acute	1		1	
Do	Pericarditis	1		1	
Do	Pleurisy, acute fibrinous	2		2	
Do	Pleurisy, serofibrinous	2		2	
Do	Pleurisy, suppurative	57	1	54	
Do	Septicemia	1		1	
Pollinvelitis, acute anterior		1			
Psychosis, manic depressive		3	1	2	
Purpura, hemorrhagic		2		2	
Pyelitis		1		1	
Rheumatic fever, acute		1		1	
Do	Endocarditis, acute	1		1	
Rupture of heart, spontaneous		1		1	
Sarcoma		3	1	2	
Scarlet fever		12		12	
Do	Nephritis, acute	1			
Do	Pneumonia, lobar	1		1	
Septicemia		25	1	22	
Do	Otitis media, acute	1		1	
Shock		2	1	1	
Sinusitis, frontal		1			
Do	Meningitis, cerebral	1		1	
Sinusitis, sphenoidal	do	1		1	
Smallpox		3		2	
Status lymphaticus		1		1	
Syphilis		12		12	
Do	Dementia, paralytica	2		2	
Tetanus		2		1	
Thrombosis		1		1	
Do	Peritonitis, acute general	1		1	
Tonsillitis, acute follicular	Pneumonia, broncho-	2		2	
Do	Shock	1		1	
Tuberculosis, abdominal		5	1	4	
Tuberculosis, acute bronchopneumonic		4		4	
Tuberculosis, acute general		6		5	
Tuberculosis, acute pneumonic		6		5	
Tuberculosis, acute pulmonary miliary		9		9	
Tuberculosis, chronic pulmonary		79	5	68	
Do	Measles	1		1	
Do	Myocarditis, acute	1		1	
Do	Pleurisy, chronic fibrinous	1	1		
Do	Pneumonia, lobar	2		2	
Tuberculosis of joint		1		1	
Tuberculosis, unqualified		6	1	5	
Tuberculous meningitis		9		9	
Typhoid fever		9		8	
Ulcer of duodenum		3		3	
Do	Peritonitis, acute general	1		1	
Ulcer of intestines		1			
Ulcer of nasal passage	Sinus	1		1	
Ulcer of stomach		6		6	
Ulceromembranous angina		1		1	
Valvular disease, chronic cardiac		14		12	
Total for diseases		5,938	245	5,074	
INJURIES.					
Abrasion, arm, "L"	Septicemia	1		1	
Burn, forearm, "L"	do	1		1	
Burn, leg, "F"		1		1	
Burn, leg (both), "F"		1		1	
Burn, multiple, "C"		9		9	
Burn, multiple, "CR"		3	2		
Burn, multiple, "E"	Nephritis, acute	1		1	
Burn, multiple, "F"		27	2	25	



## DEATHS—Continued.

TABLE 3.—Casualties in the Navy and Marine Corps during the calendar year 1918—Continued.

Cause.		Number.	Navy.		Marine Corps.	
Primary.	Secondary.		Officers.	Men.	Officers.	Men.
INJURIES—continued.						
multiple, "FR"		4	2	1	1	
multiple, "GR"		4	1			3
multiple, "K"		37		37		
multiple, "L"		5	1	4		
ression, spine, "G"		1		1		
ression, thorax, "I"		2		1		1
ression, throat, "I"		1		1		
ression, abdomen, "J"		1		1		
ression, multiple, "I"	Shock	1		1		
ression, abdomen, "L"		1		1		
ression, leg (both), "F"		1		1		
ression, leg (both), "GR"		4	1	2	1	
ression, multiple, "I"		3		1		2
ression, multiple, "L"		1		1		
ression, neck, "G"		1				1
ression, skull, "HR"		3		2		
ression, thorax, "G"		1	1	1		
ression, thorax, "I"		5	1	3		1
ression, vertebra, "L"		1			1	
ression, vertebra, "J"		1		1		
ression, "A"		8		7		1
ression, "D"		501	32	549	1	9
ression, "DR"		35	11	23	1	
ression, "DS"		4	1	3		
ression, "DU"		1		1		
ression, "GR"		1	1	1		
ression, "K"		312	35	277		
ression, shock, injury from,		3		2		1
ression from heat, "L"		1		1		
ression from overexposure, "K"		1		1		
ression from overexposure, "L"		1		1		
ression, femur, compound,		1				1
ression, humerus, compound,		1				1
ression, multiple, compound,		1		1		
ression, multiple, compound,		1		1		
ression, pelvis, compound,		1		1		
ression, skull, compound,		2		2		
ression, skull, compound,		3	1	2		
ression, skull, compound,		1		1		
ression, skull, compound,		10	1	8		1
ression, skull, compound,		15	5	7	2	1
ression, skull, compound,		2		2		
ression, skull, compound,		5	1	3		1
ression, skull, compound,		6	1	5		
ression, skull, compound,		1				1
ression, skull, compound,		1				1
ression, skull, compound,		19		18		1
ression, tibia, compound,		1		1		
ression, tibia, compound,		1				1
ression, tibia, compound,		1	1			
ression, femur, simple, "G"		1		1		

## DEATHS—Continued.

TABLE 3.—Casualties in the Navy and Marine Corps during the calendar year 1918—Continued.

Cause.		Num- ber.	Navy.		Ma- rine
Primary.	Secondary.		Officers.	Men.	
INJURIES—continued.					
Fracture, maxilla, simple, "H."	Meningitis, cerebro-spinal	1		1	
Fracture, multiple, simple, "A."		1		1	
Fracture, multiple, simple, "F."		1		1	
Fracture, multiple, simple, "L."		1		1	
Fracture, pelvis, simple, "H."		1		1	
Fracture, skull, simple, "B."		1		1	
Fracture, skull, simple, "G."		12	1	10	
Fracture, skull, simple, "GR."		4		2	
Fracture, skull, simple, "H."		3	1	2	
Fracture, skull, simple, "HR."		2		1	
Fracture, skull, simple, "J."		1		1	
Fracture, skull, simple, "L."		11		10	
Fracture, vertebra, simple, "G."		7		7	
Fracture, vertebra, simple, "GR."		2		1	
Fracture, vertebra, simple, "J."		6		5	
Fracture, vertebra, simple, "L."		2		2	
Frostbite, toes, "L."	Septicemia	1		1	
Intracranial injury, "C."		1		1	
Intracranial injury, "G."		3		3	
Intracranial injury, "GR."		3	2	1	
Intracranial injury, "H."		1		1	
Intracranial injury, "HR."		1		1	
Intracranial injury, "J."		1		1	
Intracranial injury, "K."		2		2	
Intracranial injury, "L."		3		3	
Intracranial injury, "GR."		2		2	
Intraspinal injury, "L."		1		1	
Lightning stroke, "L."		1			
Multiple injuries, extreme, "A."		1			
Multiple injuries, extreme, "E."		4		4	
Multiple injuries, extreme, "F."		42	3	39	
Multiple injuries, extreme, "FR."		3		3	
Multiple injuries, extreme, "S."		1	1		
Multiple injuries, extreme, "G."		6	1	5	
Multiple injuries, extreme, "GR."		15	5	10	
Multiple injuries, extreme, "H."		5		5	
Multiple injuries, extreme, "HR."		2	1		
Multiple injuries, extreme, "J."		12		10	
Multiple injuries, extreme, "K."		1		1	
Multiple injuries, extreme, "L."		31	2	28	
Rupture, abdominal, traumatic, "F."		1		1	
Rupture, abdominal, traumatic, "G."		1		1	
Rupture, heart, traumatic, "GR."		1		1	
Rupture, intestines, traumatic, "L."		1		1	
Rupture, kidney, traumatic, "GR."		1	1		
Rupture, liver, traumatic, "G."		1		1	
Rupture, lung, traumatic, "GR."		2	1	1	
Rupture, lung, traumatic, "L."		1		1	

## DEATHS—Continued.

TABLE 3.—Casualties in the Navy and Marine Corps during the calendar year 1918—Continued.

Cause.		Number.	Navy.		Marine Corps.	
Primary.	Secondary.		Officers.	Men.	Officers.	Men.
INJURIES—continued.						
ure, spleen, traumatic,		1		1		
ce inhalation, "C"		2	1	1		
ce inhalation, "L"		1		1		
egulation, "A"		7	1	6		
egulation, "L"		2		2		
roke, "L"		1				1
nd, gunshot, abdomen,		3		1		2
nd, gunshot, abdomen,		2		1		1
nd, gunshot, abdomen,		111		5	3	103
nd, gunshot, ankle, "E"		1				1
nd, gunshot, arm, "K"		10				10
nd, gunshot, back, "E"		1		1		
nd, gunshot, back, "K"		39			2	37
nd, gunshot, eye, "K"		1				1
nd, gunshot, face, "K"		1				1
nd, gunshot, forearm, "K"		1				1
nd, gunshot, head, "A"		26	4	14	1	7
nd, gunshot, head, "B"		1		1		
nd, gunshot, head, "E"		11	1	8		2
nd, gunshot, head, "K"		159		2	3	154
nd, gunshot, heart, "A"		5		1	1	3
nd, gunshot, heart, "K"		10				10
nd, gunshot, hip, "E"		1				1
nd, gunshot, hip, "K"		5				1
nd, gunshot, kidney, "K"		1				5
nd, gunshot, knee, "E"	Shock.	1		1		
nd, gunshot, knee, "K"		3				3
nd, gunshot, leg, "K"		26				26
nd, gunshot, leg (both),		2			1	1
nd, gunshot, lung, "E"		1				1
nd, gunshot, lung, "K"		2				2
nd, gunshot, mouth, "K"		1				1
nd, gunshot, multiple,		1		1		
nd, gunshot, multiple,		1		1		
nd, gunshot, multiple,		537		6	26	505
nd, gunshot, multiple,		1			1	
nd, gunshot, neck, "E"		1				1
nd, gunshot, neck, "K"		9			1	8
nd, gunshot, shoulder,		17			2	15
nd, gunshot, thigh, "K"		37			1	36
nd, gunshot, thorax, "A"		3		2		1
nd, gunshot, thorax, "B"		2		2		
nd, gunshot, thorax, "E"		4		1		3
nd, gunshot, thorax, "K"		90		1	3	86
nd, gunshot, unqualified,		704		1	24	679
nd, incised, abdomen, "B"		1		1		
nd, incised, head, "K"		3				3
nd, incised, throat, "A"		2		2		
nd, lacerated, abdomen,		1				1
nd, lacerated, leg, "L"		1		1		
nd, lacerated, lung, "HR"		1			1	
nd, lacerated, multiple,		1				1
nd, lacerated, multiple,		1	1			
nd, lacerated, multiple,		1		1		
nd, lacerated, multiple,		23		2	1	20
nd, lacerated, thigh, "K"		2		1		1
nd, lacerated, throat, "A"		1				1
nd, lacerated, unqualified, "K"		3				3



## DEATHS—Continued.

TABLE 3.—Casualties in the Navy and Marine Corps during the calendar year 1918—Continued.

Cause.		Num- ber.	Navy.		M.
Primary.	Secondary.		Officers.	Men.	
INJURIES—continued.					
Wound, punctured, abdomen, "E."		1			
Wound, punctured, abdomen, "FR."		1		1	
Wound, punctured, arm, "F"	Gangrene	1		1	
Wound, punctured, eye, "B"		1		1	
Wound, punctured, head, "A"		1		1	
Wound, punctured, head, "E"		3		3	
Wound, punctured, heart, "A."		1		1	
Wound, punctured, heart, "B."		1			
Wound, punctured, hip "K"		1			
Wound, punctured, multiple, "B."		1		1	
Wound, punctured, thigh, "B."	Septicemia	1		1	
Wound, punctured, thigh, "K."		1			
Wound, punctured, thorax, "A."		2		2	
Wound, punctured, thorax, "B."		2		2	
Wound, punctured, thorax, "E."		1		1	
Wound, punctured, thorax, "G."		1		1	
Wound, punctured, thorax, "I."		1		1	
Wound, punctured, thorax, "K."		1			
Total for injuries		3,271	128	1,276	
POISONS.					
Poison, chloroform, anaes- thesia, "L."		2		1	
Poison, alcohol, acute, "L"		9		7	
Poison, alcohol, chronic, "L"		1		1	
Poison, ammonia, acute, "F"		1		1	
Poison, arsenic, acute, (anti- syphilitic treatment) "L"		4			
Poison, cocaine, acute, "L"		2		2	
Poison, ether, "L"		2		2	
Poison, formaldehyde, acute, "A."		1		1	
Poison, gasoline inhalation, acute, "L"		1		1	
Poison, heroin, acute, "L"		2		2	
Poison, illuminating gas, acute, "A."		4		3	
Poison, illuminating gas, acute, "L"		8		8	
Poison, mercuric chloride, acute, "A."		3		3	
Poison, morphine, acute, "A"		1		1	
Poison, morphine, acute, "L"		1		1	
Poison, phenol, acute, "A"		3		3	
Poison, ptomaine, acute, "L"		2		2	
Poison, unqualified, acute, "A."		1		1	
Poison, warfare gas, acute, "K."		49		1	
Poison, warfare gas, chronic, "K."	Pleurisy, suppurative	1			
Total for poisons		98		41	

[illegible]

*Summary of deaths (Table 3a) from casualties in action.*

	Navy.	Marine Corps.	Total.
Lost at sea.....	408	408	408
Wounded, battle.....	58	1,791	1,849
Poison, warfare gas.....	1	49	50
Total.....	467	1,840	2,307

## INVALIDED FROM THE SERVICE.

TABLE 4.—Discharged from the service by reason of physical disability during the calendar year 1918.

Disability.	Number.	Navy.		Marine Corps.	
		Officers.	Men.	Officers.	Men.
DISEASE.					
Abscess of eye and adnexa.....	1		1		
Abscess of kidney.....	2		2		
Abscess of kidney, perinephritic.....	1		1		
Abscess of lung.....	1		1		
Abscess of lymph-node.....	2		1		1
Abscess, unqualified.....	8		7		1
Abscess of lens.....	2		2		
Achylia gastrica.....	1		1		
Acne.....	1		1		
Addison's disease.....	1		1		
Adhesions about gall bladder.....	2		2		
Adhesions about stomach.....	3		3		
Adhesions of peritoneum.....	83	1	69		13
Albuminuria.....	2		2		
Amaurosis.....	7		7		
Amblyopia.....	78		75		3
Amputation, stump.....	45		41		4
Anemia, pernicious.....	1		1		
Anemia, simple.....	1		1		
Anemia, splenic.....	3		3		
Aneurism.....	9		7		2
Angina pectoris.....	6		4		2
Anriospastic edema.....	3		3		
Ankylosis of joint.....	58		53		5
Ankylosis of ossicles.....	3		2		1
Aortitis.....	2		2		
Aphasia.....	1		1		
Apoplexy.....	3		3		
Appendicitis, chronic.....	12		11		1
Arterial sclerosis, cerebral.....	3	2	1		
Arterial sclerosis, general.....	14	3	11		
Arthritis, acute.....	4		3		1
Arthritis, chronic.....	184		169		15
Arthritis, deformans.....	3		2		1
Asthma.....	91		82		9
Astigmatism.....	61	1	59		1
Atrophy of bone or cartilage.....	2		2		
Atrophy of muscle.....	40		37		3
Atrophy of optic nerve.....	12		10		2
Atrophy of testicle.....	7		5		2
Autointoxication, intestinal.....	1		1		
Blepharitis.....	2		2		
Bromidrosis.....	1		1		
Bronchiectasis.....	5		4		1
Bronchitis, acute.....	1		1		
Bronchitis, chronic.....	93	2	87		4
Bursitis, chronic.....	16		14		2
Calsson disease.....	1		1		
Calculus in ureter, impacted.....	1		1		
Callositas.....	10		7		3
Caries of ossicle.....	1		1		
Caries of tooth.....	17		16		1
Carrier, diphtheria bacillus.....	1		1		
Carrier, meningococcus.....	67		66		1
Catalepsy.....	2		2		
Cataract.....	19	1	17		1
Cellulitis.....	8		8		
Cerebro-spinal fever.....	43		38		5
Cho.ecystitis, chronic.....	5		5		
Chole.ithiasis.....	2		2		
Chondritis.....	1		1		
Chorea.....	19		18		1
Chorea, chronic progressive.....	1		1		
Choroiditis.....	27		27		
Cicatricial contraction.....	19		18		1
Cicatrix of skin.....	5		5		
Cirrhosis of liver, atrophic.....	1				1
Cirrhosis of liver, hypertrophic.....	2		2		
Clavus.....	2		2		
Colitis, acute.....	1		1		
Colitis, chronic.....	4		4		
Color blindness.....	58	1	51		6
Conjunctivitis, acute.....	1		1		
Conjunctivitis, chronic.....	11		10		

## INVALIDED FROM THE SERVICE—Continued.

TABLE 4.—Discharged from the service by reason of physical disability during the calendar year 1918—Continued.

Disability.	Number.	Navy.		Marine Corps.	
		Officers.	Men.	Officers.	Men.
DISEASE—continued.					
Constipation.....	7		6		1
Constitutional inferiority (mental).....	644	3	596		45
Constitutional psychopathic state.....	149		136		13
Contracture of joint.....	4		3		1
Contracture of (muscle, fascia, tendon, or sheath).....	30		29		1
Coxa vara.....	2		2		
Cramp of ciliary muscle.....	2		1		1
Curvature of spine.....	23		21		1
Cystitis, acute (nonvenereal).....	1		1		
Cystitis, chronic (nonvenereal).....	25		25		
Cyst of brain.....	1		1		
Cyst of kidney.....	1		1		
Cystoma.....	1		1		
Dacryocystitis.....	4		4		
Deafness.....	54	1	46		7
Deformity of nose, acquired.....	2		2		
Dementia, paralytica.....	12		11		1
Dementia, praecox.....	288	3	257		28
Dentition.....	12		12		
Dermatitis, unqualified.....	2		2		
Detachment of retina.....	5		4		1
Deviation of nasal septum.....	5		5		
Diabetes insipidus.....	4		4		
Diabetes mellitus.....	30		28		2
Dilatation, acute cardiac.....	1		1		
Dilatation, chronic cardiac.....	3		3		
Dysentery, enteric.....	3		3		
Dystrophy, progressive muscular.....	1		1		
Ectropion.....	1		1		
Eczema.....	8		8		
Empysema, pulmonary.....	1		1		
Endocarditis, acute.....	4		4		
Endocarditis, chronic.....	296	3	285		8
Enterocolitis.....	1		1		
Epididymitis, acute (nonvenereal).....	1		1		
Epididymitis, chronic (nonvenereal).....	2		2		
Epilepsy.....	494	1	469		24
Epilepsy, Jacksonian.....	7		6		1
Eustachian salpingitis, chronic.....	5		5		
Exophthalmic goiter.....	43		39		4
Fibroma.....	2		2		
Fissure of anus.....	1		1		
Fistula in ano.....	17		17		
Fistula in urethra.....	1		1		
Gastritis, acute catarrhal.....	2		2		
Gastritis, chronic catarrhal.....	40		36		4
Gastroenteritis.....	3	1	2		
Gastroptosis.....	7		7		
Genu recurvatum.....	2		2		
Gigantism.....	1		1		
Gingivitis.....	1		1		
Glaucoma, chronic.....	2		2		
Glossitis, chronic.....	2		1		1
Glycosuria.....	2	1	1		
Goiter.....	112		105		7
Gonococcus infection of conjunctiva.....	3		2		1
Gonococcus infection of joints.....	111	2	106		3
Gonococcus infection of lymph-node.....	1		1		
Gonococcus infection of urethra.....	149		145		4
Gonococcus infection, unqualified.....	17	1	15		1
Hallux valgus.....	13	1	10		2
Hammer toe.....	23		20		3
Hæ fever.....	1		1		
Headache.....	2		2		
Heart block.....	3		3		
Hematuria, renal.....	4		3		1
Hemianopsia.....	4		3		1
Hemiplegia, old.....	9		9		
Hemoglobinuria.....	1		1		
Hemophilia.....	2		1		1
Hemorrhage into cerebellum.....	1		1		
Hemorrhage into cerebrum.....	4		4		
Hemorrhage into labyrinth.....	1		1		

## INVALIDED FROM THE SERVICE.

TABLE 4.—Discharged from the service by reason of physical disability in the calendar year 1918.

Disability.	Number.	Navy.		Marine Corps.
		Officers.	Men.	Officers.
<b>DISEASE.</b>				
Abscess of eye and adnexa.....	1		1	
Abscess of kidney.....	2		2	
Abscess of kidney, perinephritic.....	1		1	
Abscess of lung.....	1		1	
Abscess of lymph-node.....	1		1	
Abscess, unqualified.....	8		7	
Abscess of lens.....	2		2	
Achylia gastrica.....	1		1	
Acne.....	1		1	
Addison's disease.....	1		1	
Adhesions about gall bladder.....	2		2	
Adhesions about stomach.....	3		3	
Adhesions of peritoneum.....	83	1	69	
Albuminuria.....	2		2	
Amaurosis.....	7		7	
Amblyopia.....	78		75	
Amputation, stump.....	45		41	
Anemia, pernicious.....	1		1	
Anemia, simple.....	1		1	
Anemia, splenic.....	3		3	
Aneurism.....	9		7	
Angina pectoris.....	6		4	
Anriospastic edema.....	3		3	
Ankylosis of joint.....	58		53	
Ankylosis of ossicles.....	3		2	
Aortitis.....	2		2	
Aphasia.....	1		1	
Apoplexy.....	3		3	
Appendicitis, chronic.....	12		11	
Arterial sclerosis, cerebral.....	3	2	1	
Arterial sclerosis, general.....	14	3	11	
Arthritis, acute.....	4		3	
Arthritis, chronic.....	184		169	
Arthritis, deformans.....	3		2	
Asthma.....	91		82	
Astigmatism.....	61	1	59	
Atrophy of bone or cartilage.....	2		2	
Atrophy of muscle.....	40		37	
Atrophy of optic nerve.....	12		10	
Atrophy of testicle.....	7		5	
Autointoxication, intestinal.....	1		1	
Blepharitis.....	2		2	
Bromidrosis.....	1		1	
Bronchiectasis.....	5		4	
Bronchitis, acute.....	1		1	
Bronchitis, chronic.....	93	2	87	
Bursitis, chronic.....	16		14	
Calsson disease.....	1		1	
Calculus in ureter, impacted.....	1		1	
Callositas.....	10		7	
Caries of ossicle.....	1		1	
Caries of tooth.....	17		16	
Carrier, diphtheria bacillus.....	1		1	
Carrier, meningococcus.....	67		66	
Catalepsy.....	2		2	
Cataract.....	19	1	17	
Cellulitis.....	8		8	
Cerebro-spinal fever.....	43		38	
Cholecystitis, chronic.....	5		5	
Cholelithiasis.....	2		2	
Chondritis.....	1		1	
Chorea.....	19		18	
Chorea, chronic progressive.....	1		1	
Chorioiditis.....	27		27	
Cicatricial contraction.....	19		18	
Cicatrix of skin.....	5		5	
Cirrhosis of liver, atrophic.....	1			
Cirrhosis of liver, hypertrophic.....	2		2	
Clavus.....	2		2	
Colitis, acute.....	1		1	
Colitis, chronic.....	4		4	
Color blindness.....	58	1	51	
Conjunctivitis, acute.....	1		1	
Conjunctivitis, chronic.....	11		10	



## INVALIDED FROM THE SERVICE—Continued.

TABLE 4.—Discharged from the service by reason of physical disability during the calendar year 1918—Continued.

Disability.	Number.	Navy.		Marine Corps.	
		Officers.	Men.	Officers.	Men.
<b>DISEASE—continued.</b>					
Constipation.....	7		6		1
Constitutional inferiority (mental).....	644	3	598		48
Constitutional psychopathic state.....	149		136		13
Contracture of joint.....	4		3		1
Contracture of (muscle, fascia, tendon, or sheath).....	36		29		1
Cornua.....	2		2		
Cornua of ciliary muscle.....	2		1		1
Curvature of spine.....	22		21		1
Cystitis, acute (nonvenereal).....	1		1		1
Cystitis, chronic (nonvenereal).....	25		25		
Cystitis of brain.....	1		1		
Cystitis of kidney.....	1		1		
Cystoma.....	1		1		
Cystocele.....	4		4		
Cystitis.....	54	1	46		7
Curvature of nose, acquired.....	2		2		
Deafness, paralytic.....	12		11		1
Deafness, praecox.....	288	3	257		28
Deafness.....	12		12		
Deafness, unqualified.....	2		2		
Detachment of retina.....	5		4		1
Distortion of nasal septum.....	5		5		
Diabetes insipidus.....	4		4		
Diabetes mellitus.....	30		28		2
Dilatation, acute cardiac.....	1		1		
Dilatation, chronic cardiac.....	3		3		
Dysentery, enteric.....	3		3		
Dystrophy, progressive muscular.....	1		1		
Dysphagia.....	1		1		
Dysphagia.....	8		8		
Dysphagia, pulmonary.....	1		1		
Dysphagia, acute.....	4		4		
Dysphagia, chronic.....	296	3	285		8
Dysphagia.....	1		1		
Dysphagia, acute (nonvenereal).....	1		1		
Dysphagia, chronic (nonvenereal).....	2		2		
Epilepsy.....	494	1	469		24
Epilepsy, Jacksonian.....	7		6		1
Epididymitis, chronic.....	5		5		
Epididymitis, chronic.....	43		39		4
Epididymitis.....	2		2		
Epididymitis.....	1		1		
Epididymitis.....	17		17		
Epididymitis.....	1		1		
Epididymitis, acute catarrhal.....	2		2		
Epididymitis, chronic catarrhal.....	40		36		4
Epididymitis.....	3	1	2		
Epididymitis.....	7		7		
Epididymitis.....	2		2		
Epididymitis.....	1		1		
Epididymitis.....	1		1		
Epididymitis.....	2		2		
Epididymitis.....	2		1		1
Epididymitis.....	2	1	1		
Epididymitis.....	112		105		7
Epididymitis.....	3		2		1
Epididymitis.....	111	2	106		3
Epididymitis.....	1		1		
Epididymitis.....	149		145		4
Epididymitis.....	17	1	15		1
Epididymitis.....	13	1	10		2
Epididymitis.....	23		20		3
Epididymitis.....	1		1		
Epididymitis.....	2		2		
Epididymitis.....	3		3		
Epididymitis.....	4		3		1
Epididymitis.....	4		3		1
Epididymitis.....	9		9		
Epididymitis.....	1		1		
Epididymitis.....	2		1		1
Epididymitis.....	1		1		
Epididymitis.....	4		4		
Epididymitis.....	1		1		

## INVALIDED FROM THE SERVICE—Continued.

TABLE 4.—Discharged from the service by reason of physical disability the calendar year 1918—Continued.

Disability.	Number.	Navy.		Marine
		Officers.	Men.	Officers.
DISEASE—continued.				
Hemorrhage into retina.....	2			
Hemorrhoids.....	18			17
Hernia, epigastric.....	1			1
Hernia, inguinal.....	174	4		161
Hernia, internal.....	1			
Hernia of muscle, fascia, tendon, or sheath.....	1			1
Hernia, ventral.....	13			13
Herpes.....	1			1
Hydrocele of spermatic cord.....	3			3
Hydrocele of tunica vaginalis.....	3			3
Hydronephrosis.....	1			1
Hyperesthesia of retina.....	1			1
Hypertrophia, gastric.....	2			2
Hypermetropia.....	39			38
Hypernephroma.....	1			1
Hypertrophy of bone.....	8			8
Hypertrophy of heart.....	1			1
Hypertrophy of tonsil.....	1			1
Hypochondriasis.....	13			13
Hysteria.....	159			157
Ichthyosis.....	2			2
Imbecility.....	163			161
Incontinence of urine.....	78	1		72
Influenza.....	2			2
Insufficiency of ocular muscle.....	28			25
Iridocyclitis.....	2			2
Iritis.....	14	1		11
Keratitis.....	12			11
Kerato-termia.....	1			1
Kerat-iritis.....	1			1
Laryngitis, chronic.....	13			11
Leukemia.....	1			1
Leukoma.....	15			14
Lipoma.....	1			1
Locomotor ataxia.....	11	2		5
Loose body in joint.....	16			15
Loss of substance of (bone or cartilage).....	4			4
Lupus, erythematosus.....	2			2
Lymphadenitis, acute.....	1			1
Lymphadenitis, chronic.....	7			6
Lymphangiectasis.....	2			2
Lymphangitis.....	1			1
Malaria.....	2			1
Malformations, congenital.....	48			46
Malnutrition.....	6			6
Mastoiditis, acute.....	3			3
Mastoiditis, chronic.....	35			33
Masturbation.....	2			2
Melancholia, involutional.....	4			4
Menière's disease.....	2			2
Meningitis, cerebro-spinal.....	8			8
Meningitis, spinal.....	2			2
Metatarsalgia.....	5			5
Migraine.....	1			
Mixed benign tumor.....	1			1
Mvovltis transverse.....	1			
Myocarditis, acute.....	2			2
Myocarditis, chronic.....	156	1		142
Myopia.....	168	3		157
Myositis, chronic.....	18			18
Myositis, progressive, ossifying.....	1			1
Myositis, traumatic, ossifying.....	3			2
Myringitis, acute.....	1			
Nausea marina.....	83	1		82
Necrosis.....	2			1
Nephralgia.....	2			2
Nephritis, acute.....	8			6
Nephritis, chronic interstitial.....	45	1		37
Nephritis, chronic parenchymatous.....	70			66
Nephrothiasis.....	11			10
Nephrop-tosis.....	1			1
Nervous dyspepsia.....	1			1
Neuralgia.....	7			7

## INVALIDED FROM THE SERVICE—Continued.

TABLE 4.—Discharged from the service by reason of physical disability during the calendar year 1918—Continued.

Disability.	Number.	Navy.		Marine Corps.	
		Officers.	Men.	Officers.	Men.
DISEASE—continued.					
neurasthenia.....	308	10	273	1	24
neuritis.....	54		49		5
neuritis, multiple.....	5		5		
neuritis, optic.....	6		4		2
neuroma.....	1		1		
neurorretinitis.....	5		5		
neurosis, intestinal.....	5	1	3		1
neurosis, occupational.....	3		3		
neurosis of bladder.....	97		93		4
neurosis of larynx.....	1		1		
neurosis, traumatic.....	21		19		2
night blindness.....	2		2		
nystagmus.....	2		2		
obesity.....	4		4		
obstruction, chronic intestinal.....	1		1		
opacity of vitreous humor.....	10		9		1
ophthitis, acute (nonvenereal).....	1		1		
ophthitis, chronic (nonvenereal).....	9		8		1
ossification of cartilage, unqualified.....	1		1		
osteitis deformans.....	1		1		
osteoarthropathy, hypertrophic.....	1		1		
osteoma.....	8		7		1
osteomyelitis, acute.....	3		3		
osteomyelitis, chronic.....	26		26		
otitis interna.....	2		2		
otitis externa, chronic.....	16	1	13		2
otitis media, acute.....	2		2		
otitis media, chronic.....	645	1	615		29
pericymenitis, cerebral.....	3		3		
pericymenitis, spinal.....	1		1		
palpitation, cardiac.....	5		2		3
panophthalmitis.....	3		3		
paralysis, agitated.....	1		1		
paralysis, Brown-Sequard's.....	1		1		
paralysis of nerve.....	35		33		2
paralysis of ocular muscle.....	10		10		
paralysis of vocal cords.....	5		5		
paralysis, muscle, ischemic.....	2		2		
paranoia.....	1		1		
perforated nasal septum.....	13	1	11	1	
pericarditis.....	2		2		
pericardium, adherent.....	10		9		1
pericystitis, acute.....	5		5		
pericystitis, chronic.....	1		1		
persistent thymus gland.....	9		9		
pericystitis, chronic.....	1		1		
pericystitis, chronic.....	10		9		1
pericystitis, chronic.....	1,015	1	880		134
pericystitis, chronic.....	26		18		8
pericystitis, chronic.....	2		2		
pericystitis, chronic.....	38	1	34		3
pericystitis, chronic.....	12		9		3
pericystitis, chronic.....	45		42		3
pericystitis, chronic.....	18		18		
pneumonia, broncho.....	1		1		
pneumonia, interstitial.....	2		2		
pneumonia, lobar.....	5		4		1
poliomyelitis, acute anterior.....	2		2		
poliomyelitis, chronic anterior.....	1		1		
presbyopia.....	2		2		
prolapse of rectum.....	5		5		
prostatitis, chronic (nonvenereal).....	8		3		
pruritus.....	1		1		
psoriasis.....	9		9		
psychasthenia.....	48	1	42		
psychoneurosis.....	1		1		
psychosis, due to organic brain disease.....	6		6		
psychosis, epileptic.....	7		6		1
psychosis (exhaustive, infective, and toxic).....	10	1	8		1
psychosis, hysterical.....	23		20		3
psychosis, intoxication.....	7		6		1
psychosis, manic depressive.....	74	1	68		6
psychosis, polynervitic.....	1				1



## INVALIDED FROM THE SERVICE—Continued.

TABLE 4.—Discharged from the service by reason of physical disability the calendar year 1918—Continued.

Disability.	Number.	Navy.		Marine.
		Officers.	Men.	Officers.
INJURIES—continued.				
Exhaustion from heat, "L".....	1			1
Foreign body, traumatic, arm, "G".....	1			1
Foreign body, traumatic, eye, "E".....	1			1
Foreign body, traumatic, eye, "H".....	2			2
Foreign body, traumatic, eye, "L".....	3			3
Foreign body, traumatic, hand, "E".....	1			1
Foreign body, traumatic, knee, "J".....	1			1
Foreign body, traumatic, leg, "E".....	1			1
Foreign body, traumatic, neck, "E".....	1			1
Fracture, compound, femur, "G".....	1			1
Fracture, compound, fibula, "I".....	1			1
Fracture, compound, maxilla, "L".....	1			1
Fracture, compound, metacarpal, "H".....	1			1
Fracture, compound, phalanges, foot, "E".....	1			1
Fracture, compound, phalanges, foot, "L".....	1			1
Fracture, compound, phalanges, hand, "E".....	1			1
Fracture, compound, phalanges, hand, "I".....	1			1
Fracture, compound, phalanges, hand, "L".....	1			1
Fracture, compound, radius, "G".....	1			1
Fracture, compound, radius and ulna, "H".....	2			2
Fracture, compound, radius and ulna, "I".....	1			1
Fracture, compound, skull, "G".....	4			4
Fracture, compound, skull, "I".....	1			1
Fracture, compound, skull, "L".....	4			4
Fracture, compound, tibia, "L".....	1			1
Fracture, compound, tibia and fibula, "I".....	1			1
Fracture, simple, carpal, "G".....	1			1
Fracture, simple, clavicle, "G".....	2			2
Fracture, simple, clavicle, "J".....	1			1
Fracture, simple, femur, "E".....	1			1
Fracture, simple, femur, "G".....	4			4
Fracture, simple, femur, "H".....	1			1
Fracture, simple, femur, "I".....	1			1
Fracture, simple, femur, "L".....	1			1
Fracture, simple, fibula, "G".....	6			6
Fracture, simple, fibula, "I".....	2			1
Fracture, simple, fibula, "J".....	1			1
Fracture, simple, humerus, "G".....	2			2
Fracture, simple, humerus, "H".....	1			1
Fracture, simple, humerus, "L".....	5			4
Fracture, simple, metacarpal, "H".....	1			1
Fracture, simple, metacarpal, "L".....	1			1
Fracture, simple, metatarsal, "G".....	4			4
Fracture, simple, metatarsal, "I".....	2			1
Fracture, simple, metatarsal, "J".....	1			1
Fracture, simple, metatarsal, "L".....	2			2
Fracture, simple, multiple, "F".....	1			1
Fracture, simple, multiple, "G".....	1			1
Fracture, simple, patella, "G".....	2			2
Fracture, simple, pelvis, "G".....	2			2
Fracture, simple, pelvis, "I".....	1			1
Fracture, simple, phalanges, hand, "E".....	1			1
Fracture, simple, phalanges, hand, "L".....	1			1
Fracture, simple, radius, "G".....	2			2
Fracture, simple, radius, "H".....	2			2
Fracture, simple, radius, "I".....	1			1
Fracture, simple, radius, "L".....	1			1
Fracture, simple, radius and ulna, "G".....	2			2
Fracture, simple, radius and ulna, "H".....	1			1
Fracture, simple, radius and ulna, "I".....	1			1
Fracture, simple, skull, "G".....	2			2
Fracture, simple, skull, "J".....	1			1
Fracture, simple, skull, "L".....	4			4
Fracture, simple, ulna, "G".....	1			1
Fracture, simple, vertebra, "G".....	2			2
Fracture, simple, vertebra, "H".....	1			1
Fracture, simple, vertebra, "I".....	1			1
Fracture, simple, vertebra, "J".....	2			1
Fracture, simple, vertebra, "L".....	4			4
Fracture, simple, tibia, "G".....	2			2
Fracture, simple, tibia, "K".....	1			1
Fracture, simple, tibia, "L".....	2			2
Fracture, simple, tibia and fibula, "G".....	1			1





## INVALIDED FROM THE SERVICE—Continued.

TABLE 4.—Discharged from the service by reason of physical disability the calendar year 1918—Continued.

Disability.	Number.	Navy.		Marine.
		Officers.	Men.	Officers.
INJURIES—continued.				
Wound, incised, pelvis, "L"	1		1	
Wound, incised, scapula, "L"	1		1	
Wound, incised, throat, "A"	1		1	
Wound, incised, wrist, "L"	1			
Wound, lacerated, arm, "K"	3			
Wound, lacerated, axilla, "K"	1			
Wound, lacerated, e. e., "E"	3		2	
Wound, lacerated, e. e., "F"	3		3	
Wound, lacerated, e. e., "J"	1	1		
Wound, lacerated, finger, "H"	1		1	
Wound, lacerated, finger, "L"	2		2	
Wound, lacerated, foot, "H"	1		1	
Wound, lacerated, foot, "I"	1		1	
Wound, lacerated, foot, "K"	2			
Wound, lacerated, hand, "E"	1			
Wound, lacerated, hand, "F"	1			
Wound, lacerated, hand, "G"	1		1	
Wound, lacerated, hand, "I"	1		1	
Wound, lacerated, hand, "L"	4		4	
Wound, lacerated, hip, "K"	1			
Wound, lacerated, knee, "K"	1			
Wound, lacerated, leg, "K"	2			
Wound, lacerated, leg, "L"	3		3	
Wound, lacerated, multiple, "F"	1		1	
Wound, lacerated, shoulder, "K"	1			
Wound, lacerated, thigh, "K"	2			
Wound, lacerated, upper extremity, "F"	1		1	
Wound, lacerated, wrist, "A"	1		1	
Wound, lacerated, wrist, "L"	1			
Wound, punctured, abdomen, "K"	1			
Wound, punctured, eye, "E"	1			
Wound, punctured, eye, "F"	1		1	
Wound, punctured, eye, "L"	5		4	
Wound, punctured, foot, "E"	1		1	
Wound, punctured, head, "F"	1		1	
Wound, punctured, knee, "F"	1		1	
Wound, punctured, leg, "K"	1			
Wound, punctured, thorax, "E"	1		1	
Total for injuries	499	3	419	
POISONS.				
Poison, alcohol, chronic, "L"	12		12	
Poison, cocaine, chronic, "L"	10		9	
Poison, heroin, chronic, "L"	11		11	
Poison, lead, chronic, "L"	1		1	
Poison, mercury, acute, "A"	1		1	
Poison, morphine, chronic, "L"	11		8	
Poison, opium, acute, "L"	1		1	
Poison, opium, chronic, "L"	3		3	
Poison, potassium, acute, "L"	2		2	
Total for poisons	52		48	

TABLE 4 (supplementary).—Invalided from service—Naval Reserve (female)—for disabilities under Class XXIV during the calendar year

Disability.
Dysmenorrhea
Endometritis, chronic
Pregnancy
Total

## OPERATIONS.

TABLE 5.—Report of surgical operations for the calendar year 1918.

Operations.	Result.					Anesthetic employed.					
	Cured.	Died.	Improved.	Unimproved.	Transferred.	Chloroform.	Ether.	Ether with other.	Gas.	Other general.	Local or none.
Wound (cause, location and operation not stated)	61	...	2	2	2	...	20	1	3	1	42
Wound, abdominal, drained	3	...	1	1	...	...	5	...	...	...	...
Wound about rectum, incision and drainage	56	...	5	...	...	2	39	...	1	1	18
Wound, alveolar, incision	3	...	...	...	...	...	2	...	...	...	1
Wound, appendiceal, laparotomy	2	...	1	1	...	...	2	...	...	...	2
Wound, arm, incision	15	...	3	1	...	...	7	...	2	...	10
Wound, axilla, incision and drainage	15	...	...	1	...	...	10	...	1	...	5
Wound, back, incision	2	...	1	...	...	...	1	...	...	...	2
Wound, brain, trephined	...	1	...	...	...	1	1	...	...	...	...
Wound, buttock, incision	2	...	...	...	...	...	...	...	...	...	2
Wound, ear, incision	4	...	...	...	...	...	3	...	1	...	...
Wound, eye, incision (died: meningitis, cerebral)	...	1	...	...	...	...	1	...	...	...	...
Wound, face, incision	7	...	...	1	...	...	2	1	...	...	5
Wound, finger, amputation	3	...	1	1	...	...	6	...	...	...	...
Wound, finger, incision	10	...	1	1	1	1	4	...	1	1	5
Wound, foot, incision	13	...	...	...	...	...	1	1	...	...	11
Wound, hand, incision	25	...	...	...	...	...	8	...	1	...	16
Wound, jaw, incision	13	...	1	...	...	...	4	...	...	...	10
Wound, kidney, incision and drainage (died: 2 septicemia)	3	2	1	...	2	...	8	...	...	...	...
Wound, knee, incision and drainage	4	...	2	...	...	...	4	...	1	...	1
Wound, leg, incision	19	...	...	...	...	...	6	...	1	...	13
Wound, liver, incision and drainage	2	2	1	1	...	...	4	...	...	...	2
Wound, lung, incision and drainage (died: septicemia)	4	1	8	...	...	2	1	...	1	...	9
Wound, neck, incision	23	...	...	...	...	...	7	...	4	1	11
Wound, ovary, salpingectomy	...	...	...	...	1	...	1	...	...	...	...
Wound, prostate, incision and drainage	2	...	...	...	...	...	2	...	...	...	...
Wound, perineal incision	3	...	...	...	...	...	2	...	...	...	1
Wound, peritonsillar, incision	5	...	1	...	...	...	4	...	...	...	2
Wound, pharynx, incision	9	...	...	...	...	...	1	...	...	...	8
Wound, psoas, incision and drainage	...	2	...	1	...	...	3	...	...	...	...
Wound, sacral, incision	...	1	...	...	...	...	1	...	...	...	...
Wound, salivary gland, incision	3	...	...	...	...	...	2	...	...	...	1
Wound, scalp, incision	1	...	...	...	...	...	...	1	...	...	...
Wound, thigh, incision	9	...	1	...	...	...	2	...	1	...	7
Wound, urethra, incision	6	...	...	...	...	...	3	...	...	...	3
Wounds, adenectomy	311	...	...	...	...	...	41	1	2	...	267
Wound, breast, amputation	1	...	...	...	...	...	1	...	...	...	...
Wounds of peritoneum, broken up or divided	14	...	2	...	...	...	17	...	...	...	...
Amputation stump—re-amputation	4	...	23	1	...	...	24	1	1	...	2
Arism:	...	...	...	...	...	...	...	...	...	...	...
Brachial artery, excision	...	...	...	1	...	...	1	...	...	...	...
Brachial artery, ligation	1	...	...	...	...	...	1	...	...	...	...
Femoral artery, amputation of leg, (died: septicemia)	...	1	1	...	...	...	2	...	...	...	...
Femoral artery, excision	1	...	...	...	...	...	1	...	...	...	...
Popliteal artery, excision (died: septicemia)	...	1	...	...	...	...	1	...	...	...	...
Temporal artery, ligation	1	...	...	...	...	...	1	...	...	...	...
Tonsillectomy, Ludwig's, tracheotomy	...	1	...	...	...	...	...	...	...	...	1
Tonsillectomy, resection	3	...	...	...	...	...	1	...	...	...	2
Wounds of joint:	...	...	...	...	...	...	...	...	...	...	...
Elbow, manipulation	5	...	2	2	...	1	7	...	1	...	...
Foot, osteotomy	1	...	...	...	...	...	1	...	...	...	...
Hand, arthroplasty	2	...	...	...	...	...	1	1	...	...	...
Knee, manipulation	3	...	1	...	...	1	3	...	...	...	...
Toe, arthroplasty	1	...	...	...	...	...	...	1	...	...	...
Wound, acute, appendectomy (died: 1 phylaxia, 1 acute dilatation of heart, 1 nephritis, 14 peritonitis, 2 pneumonia, 1 septicemia, 2 shock)	1,249	22	21	4	31	4	1,265	56	1	...	1
Wound, chronic, appendectomy (died: 1 acute dilatation of stomach, 1 meningitis, 1 peritonitis, 1 pneumonia, 1 septicemia, 1 septicemia)	1,194	6	17	1	16	1	1,210	21	...	...	2
Wound, acute, tonsillectomy	3	...	...	...	...	...	3	...	...	...	...
Wound, acute, knee, incision	1	...	1	...	...	...	2	...	...	...	...
Wound, chronic, elbow, incision	...	...	...	1	...	...	1	...	...	...	...
Wound, chronic, knee, arthroplasty	...	...	...	...	...	...	...	1	...	...	...
Wound, of testicle, orchidectomy	3	...	3	1	...	...	4	1	...	...	1



## OPERATIONS—Continued.

TABLE 5.—Report of surgical operations for the calendar year 1918—C

Operations.	Result.					Anesthetic employed.		
	Cured.	Died.	Improved.	Unimproved.	Transformed.	Chloroform.	Ether.	Ether with other.
<b>Avulsion:</b>								
Arm, amputation of stump.....	1						1	
Fingers, amputation of stump.....	5		1		2		3	
Leg, amputation of stump.....	1						1	
Scrotum, repair.....	2						2	
<b>Burn:</b>								
Glans penis, circumcision.....	2						1	
Eye, sutured.....			2					
Foot, skin graft.....			1					
Bursitis, chronic, incised and drained.....	17				2		15	
Calculus in urethra, calculus removed.....	3						2	
Callositas, foot, excision.....	1							
<b>Carbuncle:</b>								
Neck, incised and curetted (died; chloroform poisoning).....	12	1	2			1	10	
Thigh, incised and curetted.....	2						2	
<b>Carcinoma:</b>								
Intestines, laparotomy.....					1		1	
Pancreas, laparotomy.....	1						1	
Sigmoid, colostomy.....		1					1	
Stomach, gastrotomy.....	1	1					1	
Transverse colon, laparotomy.....		1					1	
<b>Cataract, excision.....</b>	<b>1</b>		<b>1</b>					
<b>Cellulitis:</b>								
Arm, incised.....	15					1	12	
Finger, amputation.....	3						3	
Hand, incised.....	10		1	1			7	1
Leg, incised.....	2							
Penis, incision.....	1							
Thigh, amputation.....	1				1		1	
Unqualified, incision.....	58		2	3	3	3	42	2
Cerebro-spinal fever, aspiration of ventricle.....	1	1		1			3	
Chalazion, excision.....	26							
Chancroid of lymph node, incision.....	135				1		28	
Cholecystitis chronic, cholecystotomy.....	9		3	1	2		15	
Cholelithiasis, cholelithotomy.....	5		1				5	1
Chondroma, excision.....	1		1				2	
<b>Cicatrix of skin:</b>								
Fingers, amputation.....	1						1	
Unqualified, excision.....	8				1		8	
Unqualified, plastic repair.....	3						2	
Clavus, excision.....	1						1	
Contracture of muscle, plastic repair.....	1		1	1			2	1
Contracture of tendon:								
Finger, amputation.....	2		1	1			3	
Toe, tenotomy.....	1						1	
<b>Contusion:</b>								
Abdomen, exploratory laparotomy.....	2						2	
Arm, incision.....	1						1	
<b>Crush:</b>								
Hand, amputation of fingers.....	17		6		2	2	12	
Face, plastic repair.....			1				1	
Foot, amputation.....	3						3	
Foot, resection of phalanges.....			1					
Foot, skin graft.....					1			
Hand, amputation.....			2			1		
Leg, amputation (died; shock).....		1				1		
Toe, amputation.....	3				3		3	
<b>Cystoma:</b>								
Face, excision.....	3						1	
Breast, excision.....	1							
Epididymis, excision.....	1							
Leg, excision.....	5						3	
Neck, excision.....	1						1	
Unqualified, excision.....	57						11	
Cystitis, chronic, cystotomy.....	21		1				12	2
Dacrocystitis, excision, of sac.....	1		2				1	1
Deformity, ear, acquired, plastic repair.....			2				2	
Deformation of nasal septum, submucous resection.....	702		23	1	1		2	
Dilatation of stomach, chronic, gastrotomy.....	1							1
Diphtheria, tracheotomy.....		1						



## OPERATIONS—Continued.

TABLE 5.—Report of surgical operations for the calendar year 1918—Continued.

Operations.	Result.					Anesthetic employed.				
	Cured.	Died.	Improved.	Unimproved.	Transferred.	Chloroform.	Ether.	Ether with other.	Gas.	Other general.
Excision of:										
Cartilage, knee, chondrectomy.....	2		2				4			
Radius, resection.....	1		1				1			
Vertebra, cervical, open reduction.....	1		1				1			
Arthritis of bladder, excision.....	1		1				1			
Anterior, entamebic, appendectomy.....	1		1				1			
Anterior, unclassified, artificial anus.....	1		1						1	
Anterior, unclassified, cecostomy.....	1		1						1	
Epion, plastic.....	2		1				3			
Excision of uvula, amputation.....	1		1							1
Polypism, exploratory, laparotomy.....	1	1					1			
Proctitis, chronic, curetted.....	1		1				1			
Proctitis, acute, epididymectomy.....	77						27		1	48
Proctitis, plastic.....	1		1				1			
Proctitis, inguinal, excision.....	4		1				1			3
Proctitis, ethmoidectomy.....	1		1							1
Proctitis, salpingitis, tonsillectomy.....	1		1				1			
Proctitis, intestinal, appendectomy.....	1		1					1		
Proctitis:										
Breast, excision.....	3						2			1
Buttock, excision.....	2						2			
Knee, excision.....	1									1
Pharynx, excision (died; shock).....	1	1					1			
Uterus, hysterectomy.....	12						7			5
Urethra of anus:										
Curetted.....	1						1			
Dilatation.....	23						18	1		4
Ula in ano, incised and curetted.....	133		10	1	3	4	124	2	4	13
Ula of bladder, curetted.....	1		1				1			
Ula of urethra, resection.....	3						2			1
Urethritis decalvans, plastic.....	1									1
Foreign body, traumatic:										
Arm, excision.....	2		1				2			1
Back, excision.....	1		1				2			
Chest wall, excision.....	1		1				1			
Eye, enucleation.....	1		2		1		2	2		
Finger, excision.....	1									1
Hand, excision.....	7						4	1		2
Hip, excision.....	4									4
Knee, excision.....	9		1	1	1	1	8			2
Leg, excision.....	1		1				1			1
Lung, thoracotomy.....	1						1			
Os calcis, excision.....	1						1			
Shoulder, excision.....	1							1		
Stomach, gastrotomy.....	1		1				1			
Wrist, excision.....	2						2			
Fracture of:										
Clavicle, compound, clavicotomy.....	1						1			
Clavicle, simple, clavicotomy.....	1						1			
Clavicle, simple, wired.....	1		1				2			
Cecum, simple, excision.....	3						2			1
Femur, compound, amputation.....			1				1			
Femur, compound, bone graft.....				1			1			
Femur, compound, open reduction.....			1				1			
Femur, compound, plated.....	3		1				3	1		
Femur, compound, plate removed.....	1						1			
Femur, compound, reduction, and ligation.....	1						1			
Femur, simple, plated.....	4		4	2		1	9			
Femur, simple, traction pins inserted.....	1		1						1	
Femur, simple, wired.....	1		1				1			
Femur and tibia, simple, plated.....	1						1			
Fibula, simple, curetted.....	1		1				1			
Fibula, simple, osteotomy.....	1						1			
Humerus, compound, amputation.....	1						1			
Humerus, compound, curetted.....			1						1	
Humerus, compound, incised and drained.....	2		5				7			
Humerus, compound, open reduction.....	1		1				1			
Humerus, compound, osteotomy.....	1		1				1			
Humerus, compound, plate removed.....	1									1
Humerus, simple, bone graft.....			1				1			
Humerus, simple, plated.....	2		1				3			

## OPERATIONS—Continued.

TABLE 5.—Report of surgical operations for the calendar year 1918—

Operations.	Result.					Anesthetic.		
	Cured.	Died.	Improved.	Unimproved.	Transferred.	Chloroform.	Ether.	Ether with other.
Fracture of—Continued.								
Humerus, simple, plate removed			2				2	
Humerus, simple, sutured	1						1	
Humerus, simple, wired	1						1	
Malar, simple, wired	2						2	
Maxilla, inferior, compound, wired	1						1	
Maxilla, inferior, simple, wired	2					1		
Maxilla, inferior, simple, plated	1						1	
Metatarsal, compound, osteotomy	5				1	1	3	
Metatarsal, compound, sequestrotomy			1			1		
Metatarsal, simple, wired	1						1	
Multiple, compound, open reduction and ligation (died; shock)		1					1	
Multiple, simple, plate removed	1						1	
Patella, simple, sutured	10				2	1	11	
Pelvis, compound, exploratory laparotomy (died; shock)		1					1	
Pelvis, simple, cystotomy (died; hemorrhage)		1					1	
Phalanges, foot, compound, amputation	4		1				2	1
Phalanges, foot, simple, amputation	1						1	
Phalanges, foot, simple, sequestrotomy	1						1	
Phalanges, hand, compound, amputation	4		2				3	
Phalanges, hand, compound, open reduction	3			1	1		4	
Phalanges, hand, compound, resection			1				1	
Phalanges, hand, compound, sequestrotomy	2		1				2	
Phalanges, hand, compound, tenorrhaphy	1							
Phalanges, hand, simple, refractured	1						1	
Radius, compound, plated	1						1	
Radius, compound, sutured	1						1	
Radius, compound, wired	1						1	
Radius, simple, bone graft	1						2	
Radius, simple, wired	1		1				2	
Radius and ulna, compound, amputation (died; gangrene)	1	1					2	
Radius and ulna, compound, wired			1		1	1	1	
Radius and ulna, simple, amputation					1		1	
Radius and ulna, simple, plated					2		2	
Radius and ulna, simple, wired			1				1	
Radius and phalanges, compound, amputation	1					1		
Scaphoid, compound, excision	1						1	
Scaphoid, simple, sequestrotomy	3						2	
Sphenoid, simple, temporal decompression	1		1				2	
Skull, compound, decompression	2				1		3	
Skull, compound, trephine (died; hemorrhage)	2	2	2		3	2	6	1
Skull, simple, decompression	1		1			1	1	
Skull, simple, sequestrotomy	1						1	
Skull, simple, trephine (died; hemorrhage)		1					1	
Tibia, compound, amputation (died; shock)	1	2	1				4	
Tibia, compound, incision and drainage			2				1	
Tibia, compound, open reduction	4		1		1		4	1
Tibia, compound, plated	2						2	
Tibia, compound, resection			1				1	
Tibia, simple, open reduction	1						1	
Tibia, simple, plated	2						2	
Tibia, simple, plate removed	1						1	
Tibia and fibula, compound, curetted			2				2	
Tibia and fibula, compound, open reduction	2		6			2	4	1
Tibia and fibula, compound, plated	2			1			3	1
Tibia and fibula, compound, plate removed			1				1	
Tibia and fibula, compound, resection				1			1	
Tibia and fibula, compound, sequestrotomy			1				1	
Tibia and fibula, compound, wired			2				2	
Tibia and fibula, simple, amputation			1				1	
Tibia and fibula, simple, plated			1				1	
Ulna, simple, bone graft			1					1
Ulna, simple, wired	1						1	
Vertebra, compound, laminectomy		1					1	
Vertebra, simple, laminectomy		1					1	
Frostbite, finger, amputation	1							



## OPERATIONS—Continued.

TABLE 5.—Report of surgical operations for the calendar year 1918—Continued.

Operations.	Result.					Anesthetic employed.					
	Cured.	Died.	Improved.	Unimproved.	Transferred.	Chloroform.	Ether.	Ether with other.	Gas.	Other general.	Local or none.
Angioma, foot, excision.	3						1				2
Angioma, groin, excision.	1						1				
Angioma, hand, excision.	12						2				10
Angioma:											
Hand, amputation.	1						1				
Leg, amputation (died; toxemia).	2	1					2				1
Lung, thoracentesis.			1								1
Unqualified, incision and drained.	1										1
Astropodosis, laparotomy.			1				1				
Station, extrauterine, salpingo-oophorectomy.			1				1				
Edema, brain, decompression.	1	1					2				
Goiter, thyroidectomy.	29				1		30				
Onchocercus infection of epididymis, epididymectomy.	20		3				23				
Onchocercus infection of lymph-node, incision.	15						8				7
Orchitis, vasectomy.											
Amputation.	1										1
Mayo.	21		1				20				2
Hammer toe, amputation.	57			1			41				17
Edema of spermatic cord, ligation.	1						1				
Edema, traumatic, unqualified, excision.	3						2		1		
Emphysema, decompression.	1		1				1	1			
Emphysema, ligation.	1						1				
Emphysema into cerebrum, decompression.		1		2			2				1
Emphysema into cerebrum, osteoplastic flap.	1						1				
Emphysema, epidural, trephine.		1									1
Emphysema, subdural, decompression.		1					1				
Emphysema, removal and repair.	9255	48		1	6		889	24			55
Encephalitis:											
Epigastric, herniotomy (died; 2 peritonitis).	10	2					11				
Femoral, herniotomy.	29		1		1		29				2
Inguinal, herniotomy (died; 1 pneumonia) 1 tetanus, 1 pulmonary embolism).	1,881	3	37	1	9	4	1,869	38			20
Internal, colostomy (died; toxemia).		1					1				
Scrotal, herniotomy.	1		1				2				
Umbilical, herniotomy.	10						9				1
Ventral, herniotomy.	117		3		5	1	120	2			2
Hydrocele, excision and repair (died; paralysis of respiration).	112	1	2		1		104	5			7
Hydrocephalus, nephropexy.	2		2				4				
Hypertrophy of bone, nose, submucous resection.	1						1				
Hypertrophy of bone, toe, amputation.	1						1				
Hypertrophy of tonsil, tonsillectomy.	3,429	1	5		2		886		1		2,550
Inflammation of salivary gland, incision.			1								
Growing nail, excision.	204					1	2		1	1	259
Insufficiency of ocular muscle, plastic.	5										5
Intracranial injury, decompression.			1				1				
Intracranial injury, trephined (died; hemorrhage).	1	1					2				
Ischemia:											
Abdominal wall, excision.	2										2
Back, excision.	2						1				1
Breast, resection.	2						1				1
Hand, excision.	4										4
Leg, excision.	12		2			1	8				5
Loss of body in joint, knee, arthrotomy.	5						5				
Lymphadenitis, acute:											
Cervical, excision.	1						1				
Cervical, incision.	2						2				
Inguinal, incision.	94		1		2		43				54
Malformation, congenital:											
Amputation (toes).	4						1		1		2
Plastic repair.			1				1				
Orchidectomy.	7						6	1			
Repair (cleft palate).	3										3
Repair (web toes).	1										1
Replacement of testicle.	3						3				
Stomatitis, chronic, amputation of breast.	1						1				
Stomatitis, mastoidectomy (died; septicemia).	200	6	13	6	13		235		3		
Encephalitis, cerebral, osteoplastic resection.		2					2				
Menorrhagia, dilatation and curettage.	1						1				
Multiple injuries, extreme, amputation of legs.		2			2		4				

## OPERATIONS—Continued.

TABLE 5.—Report of surgical operations for the calendar year 1918—Contd.

Operations.	Result.					Anesthetic employed.			
	Cured.	Died.	Improved.	Unimproved.	Transferred.	Chloroform.	Ether.	Ether with other.	Gas.
Multiple injuries, extreme, thoracotomy			1				1		
Myositis, acute, exploratory incision	1		2				2		
Necrosis of bone:									
Femur, curetted			3				3		
Humerus, curetted	1		3				4		
Maxilla, curetted			1				1		
Pelvis, curetted				1			1		
Phalanges, finger, amputated	1		1		1		2		
Radius, curetted			1				1		
Rib, curetted	4						4		
Tibia, curetted	3		1				3		
Tibia and fibula, curetted	1		2				3		
Unqualified, curetted			2				1		
Nephralgia, exploratory incision	1						1		
Nephrolithiasis, nephrectomy	1						1		
Nephrolithiasis, nephrotomy (died; septicemia)	10	1	2		2		9	3	
Nephroptosis, nephroplexy	1						1		
Neuritis, leg, sciatic nerve stretched	1						1		
Neuroma, hand, resection	1						1		
Neuroma, unqualified, resection	3						2		
Neurosis of bladder, cystotomy			1				1		
Neurosis, intestinal, dilatation of sphincter	1								1
Nevus, abdomen, excision	1						1		
Nevus, face, excision	1								
Obstruction, intestinal:									
Anastomosis	1			2			3		
Cellotomy	1						1		
Enterostomy (died; 2 toxemia, 3 peritonitis)	7	5	1		1	1	11		
Orchitis, orchidectomy	7		3				10		
Osteitis deformans, arm, curetted	1		1				2		
Osteoma:									
Foot, amputation (toes)	1						1		
Hand, excision	4						4		
Head, resection			1				1		
Leg, excision	13		1				14		
Tibia, excision	2						2		
Osteomyelitis:									
Arm, amputated	1		1	1	1		4		
Finger, amputation			1				1		
Leg, amputation			3			1	2		
Leg, curettage	4		1	1	2		8		
Unqualified, incision	3		2	3		1	6		
Unqualified, osteotomy (died; septicemia)	24	1	7	1			27	1	
Unqualified, transfusion			1						
Otitis media:									
Mastoidectomy	3		2		2	2	5		
Paracentesis	18		7	2	1	1	10		
Tonsillectomy	1		2				1		
Pancreatitis, laparotomy, and drainage	1						1		
Panophthalmitis, enucleation	3						3		
Papilloma, leg, excision	2								
Papilloma, urethra, excision	5						1		
Paralysis of nerve, sutured	1						1		
Paraphimosis, circumcision	12		1				1		
Periostitis:									
Phalanges, hand, curetted	6		3				7		
Tibia, curetted			1	3			4		
Peritonitis, laparotomy (died; 1 pneumonia, 4 septicemia, 1 tuberculosis)	14	6	1	1	1		22		
Pes cavus, fasciotomy			1				1		
Phimosis, circumcision	1,310		1			2	39	30	
Pleurisy, acute, fibrinous, thoracotomy	1						1		
Pleurisy, serofibrinous, aspiration	1								
Pleurisy, suppurative, thoracotomy (died; septicemia)	311	182	93	33	72	17	34	2	30
Pleuritic adhesions, pleurotomy (died; septicemia)		1							
Polypus, nasal, removed	33		1	1			6		1
Prolapse of rectum, resection	1		3				3	1	

## OPERATIONS—Continued.

TABLE 5.—Report of surgical operations for the calendar year 1918—Continued.

Operations.	Result.					Anaesthetic employed.					
	Cured.	Died.	Improved.	Unimproved.	Transferred.	Chloroform.	Ether.	Ether with other.	Other general.	Gas.	Local or none.
statitis:											
Incised and drained.....	2						2				
Prostatectomy.....	2		1				1		2		
Pyelium, excision and repaired.....	54										54
Pyelitis, nephrotomy (died; septicemia).....	6	1					6				1
Omphalitis, exploratory, incision.....				1			1				
Pneumothorax, thoracentesis.....			5								5
Undant prepuce, circumcision.....	830		25				14				841
Undant scrotum, amputation.....	3						3				
umatic fever, acute, amputation of toes.....	1						1				
Pyelitis, chronic, turbinectomy.....	35										35
cture of:											
Bladder repair.....	1						1				
Fascia, suture.....	1						1				
Kidney, nephrectomy.....	1		2		1		4				
Muscle, suture.....				1	1		2				
Spleen, splenectomy.....	1		1				2				
Tendon, tenorrhaphy.....	2						2				
Urethra, repair.....	1						1				
oma:											
Foot, amputation.....	1						1				
Knee, resection.....	1						1				
ticemia:											
Arm, incision and drained.....			1			1					
Hand, amputation.....			1	1			2				
Unqualified, incision and drained.....			3				1		1		1
ns:											
Abdomen, repair.....	4						3				1
Chest, repair.....	2						2				
Coccyx, repair.....	1							1			
Elbow, repair.....	1						1				
Leg, repair.....	1						1				
Neck, repair.....	1										1
Pilonidal, repair.....	3						3				
itis, ethmoidal, ethmoidectomy.....			1								1
itis, frontal, evacuation of antrum.....	33		6	1	2		25	1			16
itis, maxillary, drainage.....	15		10	1			13				13
ar on nasal septum, excision.....	44		1				1				44
icture of urethra, urethrotomy (died; septicemia).....	9	1		2	2		12				2
ablepharon, plastic.....			1								1
ovitis, knee, arthrotomy.....	1						1				
hills (iritis) enucleation of eye.....					1			1			
hills, excision of glands (inguinal).....	2		2			1	2				1
nosynovitis, incision.....	2						2				
atoma, nose, excision.....	1										1
rombosis, ligation and excision.....	2		1				1				2
rombosis, resection of jugular vein.....	1						1				
roiditis, ligation of arteries.....	2						2				
choma, eurentage.....	7						7				
erculosis:											
Abdominal, laparotomy.....		2	3	1			4		1		1
Cervical glands, excision.....	6		2	1			7	1			1
Epididymis, excision.....	1						1				
Intestines, resection of colon.....		1					1				
Joint, amputation (leg).....	1						1				
Joint, amputation (wrist).....	1						1				
Joint, incision.....	3		5	1	1		7				3
Joint, resection of astragalus.....			1				1				
Kidney, nephrectomy (died; renal toxemia).....	1	1	1				3				
Testicle, orchidectomy.....			2	1		1					2
Spinal column, incision.....			2								2
erculosis, acute general, exploratory laparotomy.....		1		1			2				
umor:											
Arm, excision.....	2						1				1
Back, excision.....	1										1
Brain, decompression.....	1						1				
Breast, excision.....	9						3				6
Eyelid, excision.....	1						1				
Tongue, excision.....	1										1
Unqualified, excision.....	6						3				3



## OPERATIONS—Continued.

TABLE 5.—Report of surgical operations for the calendar year 1918—Con

Operations.	Result.					Anesthetic emp			
	Cured.	Died.	Improved.	Unimproved.	Transferred.	Chloroform.	Ether.	Ether with other.	Other general.
Typhoid fever, repair of perforations (died; shock).....	2	1					3		
Ulcer of duodenum, gastroenterostomy (died; peritonitis).....	15	1	2		1		16	3	
Ulcer of skin:									
Curettage.....	1		1	1			3		
Excision.....	1						1		
Skin graft.....	5						2		
Ulcer of stomach:									
Gastroectomy.....			2				2		
Gastroenterostomy.....	1						1		
Gastrostomy (died; peritonitis).....	9	2			2		13		
Union of fracture faulty, refractured.....	1						1		
Varicocele, excision and ligation.....	1,000		23	1			754	37	
Varix, excision and ligation.....	123		4		1		108	2	1
Wound, gunshot:									
Ankle, bullet excised.....	1		1				2		
Arm, curetted.....			3				2		1
Brain, trephined.....		1					1		
Chest, curetted.....	1		1						1
Face, curettage.....			2						2
Face, plastic repair.....			1				1		
Finger, disarticulation.....	1								
Finger, repair.....			1						
Foot, curetted.....	7		1						
Hand, curetted.....			1		1		5		1
Hand, bullet excised.....			1				1		
Head, bullet excised.....	4		2				6		
Hip, curetted.....			1				1		
Knee, curetted.....			1				1		
Leg, bullet excised.....	1				1		2		1
Leg, incision and drainage.....	5		5				5		3
Lumbar, incision and drainage.....			1	1			2		
Shoulder, exploratory incision (died; hemorrhage).....									
Thigh, bullet excised.....		1					1		
Thigh, exploratory incision.....	2		4				4		1
Wound, incised:									
Arm, sutured.....	1				1		1		
Buttock, ligation of vessels.....									
Eye, enucleation.....			1						
Eye, sutured.....	1								
Hand, amputation.....	3						3		
Hand, tenorrhaphy.....	11				1		9	1	
Neck, sutured.....	1						1		
Wrist, tenorrhaphy.....	2		1				2		
Wound, lacerated:									
Arm, amputation.....	2								
Arm, sutured.....	7		2		1		4		
Back, foreign body removed.....	1				1		3	1	
Eye, enucleation.....	1						1		
Eye, sutured.....	1						2		
Face, foreign body removed.....					1				
Finger, amputated.....	72		4	1	2		46		3
Finger, sutured.....	4						1		
Foot, incision and drainage.....	3						2		1
Groin, sutured.....	2								
Hand, amputation.....	2								
Hand, incision and drainage.....	13		3				3		
Hand, sutured.....	1						11		
Head, sutured.....	10						1		
Knee, excision of cartilage.....	1						5		1
Knee, incision and drainage.....	2						1		
Knee, resection of patella.....	1		1				2		
Leg, amputation.....							2		
Leg, repair.....	6		3				3		
Neck, sutured.....	1		1		1		4	1	
Neck, incision and drainage.....							1		
Scalp, curettage and drainage.....	2		1						1
Scrotum, ligation and suture.....	1								1
Thigh, sutured (died; septicemia).....	3		1				1		
Toe, amputation.....	15		2				3		
Wrist, tenorrhaphy.....	1						15		1

## OPERATIONS—Continued.

TABLE 5.—Report of surgical operations for the calendar year 1918—Continued.

Operations.	Result.					Anesthetic employed.					
	Cured.	Died.	Improved.	Unimproved.	Transferred.	Chloroform.	Ether.	Ether with other.	Gas.	Other general.	Local or none.
Wound, punctured:											
Abdomen, celiotomy.....	1				2		3				
Abdomen, enterorrhaphy.....	1							1			
Arm, bone graft.....			2				2				
Buttock, exploratory incision.....					1	1					
Eye, enucleation.....	2						1				1
Eye, plastic.....				1			1				
Face, foreign body removed.....			2				1				1
Neck, incision and drainage.....					1		1				
Shoulder, excision of bone fragments.....					1		1				
Thigh, exploratory incision.....	1		2		2		4				1
Thigh, ligation of femoral vein.....	1						1				
Skull, decompression (died; hernia of brain).....		1									1
Total operations (17,616).....	16,273	298	686	113	246	87	9,271	265	111	12	7,870

NOTE.—This table does not include operations performed in the war zone on personnel of the United States Army and Marine Corps units brigaded with the United States Army. Detailed reports of operations performed on the field and in Army base hospitals are not available.

## DENTAL WORK.

TABLE No. 6.—Dental operations for the calendar year 1918.

Operation or treatment.	Number of cases.	Operation or treatment.	Number of cases.
<b>Fillings:</b>		<b>Impacted teeth:</b>	
Amalgam, ordinary.....	135,420	Corrected.....	555
Amalgam, built on post.....	1,772	Extracted.....	2,111
Cement, permanent.....	32,937	<b>Inlays:</b>	
Cement, synthetic.....	5,991	Recemented (gold or porcelain).....	906
Cement, temporary.....	8,444	Removed (gold or porcelain).....	281
Gutta-percha, permanent.....	8,401	<b>Maxillæ treated:</b>	
Gutta-percha, temporary.....	30,072	Fractured.....	161
Other than listed.....	4,127	Necrosed.....	223
<b>Extractions:</b>		<b>Prophylaxis:</b>	
Acute and blind, lanced.....	3,368	Calculus removed (sets).....	40,382
Acute and blind, root opening.....	1,875	Cleaned and polished (sets).....	35,216
Chronic and fistulous, treated.....	2,017	<b>Pulp:</b>	
<b>Extraction:</b>		Exposed and extirpated.....	13,321
Recemented.....	1,472	Exposed and devitalized.....	12,574
Removed.....	610	Putrescent.....	13,728
<b>Crown:</b>		<b>Roots:</b>	
Gold, new.....	21	Canals filled.....	34,244
Gold, recemented.....	2,016	Canals treated.....	43,951
Gold, removed.....	813	Porcelain crowns (incisor).....	825
Porcelain, recemented.....	1,496	Porcelain crowns (bicuspid).....	719
Porcelain, removed.....	309	Extracted.....	55,048
<b>Teeth treated:</b>		Teeth extracted (other than roots).....	16,960
Gingivitis.....	5,500	Treatment (other than listed).....	7,937
Pyorrhea.....	5,145		
Other local inflammation.....	9,548	<b>Total operations.....</b>	<b>544,516</b>

## RECRUITING.

TABLE No. 7—*Recruiting statistics, Navy and Marine Corps, for calendar 1918.*

Character.	Navy.			Marine Corps.		
	Original.	Reenlistment.	Reserve.	Original.	Reenlistment.	Accepted applicants.
Total applicants.....	158,081	9,704	371,706	154,601	1,368	38,694
Total enlisted.....	49,896	8,793	218,192	38,604	1,262	37,474
Examined by medical officer.....	151,124	9,555	346,531	131,966	1,248	37,563
Rejected by medical officer.....	67,196	356	125,308	37,166	56	49
Principal cause of rejection by medical officer:						
Abscess conditions (general).....	49	1	51	2		
Alcoholic.....	146	4	157	50		
Deformities.....	4,604	31	7,193			7
Drug addict.....	12		3	3		
Ear—						
Defective hearing.....	1,560	19	2,315	1,160	4	3
Other auditory diseases.....	739	7	974	936	3	1
Eye—						
Color blind.....	2,412	6	8,469	1,225		
Defective refraction.....	9,299	57	22,736	5,452	8	10
Other visual diseases.....	435	4	690	562		
Febrile conditions.....	41		70	3		
Flat feet.....	5,806	15	10,655	5,350	3	9
Gastrointestinal tract, catarrhal conditions.....	47	2	161	27		
Genito-urinary, nonvenereal.....	709	5	1,234	364		
Genito-urinary, venereal.....	2,420	38	3,341	954	1	10
Glands enlarged.....	85		174	31		
Gout, or tendency to.....	556		994	341		
Growths (cysts, tumors, etc.).....	60	2	88	56		
Heart affections.....	3,819	26	7,494	3,739	1	1
Height, over.....	85		90	66		
Height, under.....	2,670	1	3,197	862		
Height and weight, under.....	60		545	445		
Hemorrhoids.....	809	9	1,716	637		
Hernia, or tendency to.....	2,127	10	3,859	1,836	5	
Intestinal parasites.....	11		1			
Mental disorders.....	203	1	273	289	2	
Nasal abnormalities.....	309	1	396	473		
Nervous conditions—						
Epilepsy.....	10	1	34	24	1	
Other.....	23		48	8		
Poor physique.....	1,035	2	1,136	507		
Pyorrhea.....	183	1	212	32		
Respiratory tract, catarrhal conditions.....	188	2	221	52		
Rheumatic conditions.....	41		125	55		
Skin diseases.....	1,529	10	1,961	838		
Speech defective.....	143		209	76		
Tattooing objectionable.....	30		50			
Teeth defective.....	5,879	28	11,564	2,650	3	1
Tonsillar conditions.....	859	2	1,282	270		
Tuberculosis or suspects.....	1,610	15	1,807	832	18	
Unsightly scars or marks.....	39		45	24		
Varicose or varicose veins.....	3,290	14	5,976	1,651	1	1
Weight, over.....	31		136	54		
Weight, under.....	12,886	39	23,037	5,199	6	6
All other causes.....	257	3	599	31		



*Principal causes of rejection of candidates for original enlistment:*

	Navy.		Marine Corps.	
	Original.	Reserve.	Original.	Reserve.
Weight, under.....	12,886	23,037	5,199	48
Effective refraction.....	9,299	22,736	5,462	22
Flat feet.....	5,806	10,655	5,350	12
Both defective.....	5,879	11,564	2,650	3
Heart affections.....	3,819	7,484	3,739	21
Color perception defective.....	2,412	8,469	1,225	5
Deformities.....	4,694	7,193	.....	22
Varicocele or varicose veins.....	3,290	5,976	1,651	8
Gonorrhea, or tendency to.....	2,127	3,859	1,836	8
Gonorrhea (venereal).....	2,420	3,341	964	16
Weight, under.....	2,670	3,197	862	1
Effective hearing.....	1,660	2,315	1,160	6
Skin diseases.....	1,529	1,961	838	7
Tuberculosis or suspects.....	1,610	1,807	832	6
Poor physique.....	1,035	1,135	507	.....

**FINANCIAL.**TABLE No. 8.—*Statement of total cost of maintenance and average cost per diem for maintenance and subsistence of naval hospitals for the fiscal year 1919.*

Hospital at—	Total cost of maintenance.	Subsistence.	Maintenance.	Subsistence per diem.
		<i>Days.</i>		
Annapolis, Md.....	\$210,573.82	109,432	\$1.92424	\$1.1331
Brest, France.....	186,994.17	177,085	1.0554	.6238
Brooklyn.....	1,973,550.06	411,476	1.9834	.8219
Sanacac, P. I.....	72,720.84	52,626	1.361	.7039
Cape May, N. J.....	86,316.29	55,797	1.54	.7838
Charleston, S. C.....	362,091.62	249,614	1.451	.640
Chelsea, Mass.....	417,884.71	307,926	1.3453	.5436
Fort Lyon, Colo.....	616,315.23	265,631	3.2062	.8761
Great Lakes, Ill.....	792,128.71	561,010	1.4101	.77075
Ham.....	45,398.41	22,977	1.975	.857
Hulport, Miss.....	58,385.65	41,336	1.4124	.8187
Hampton Roads, Va.....	364,991.43	259,480	1.406	.794
Key West, Fla.....	99,144.32	76,478	1.29637	.79618
League Island, Pa.....	158,922.28	125,018	1.27	.528
Leith, Scotland <sup>1</sup> .....	95,152.13	83,497	1.13	.685
London, England <sup>1</sup> .....	29,742.22	17,853	1.649	.909
Orient, France <sup>1</sup> .....	25,999.32	16,065	1.62	.67
Pearl Island, Cal.....	581,101.12	345,268	1.682	.8733
New London, Conn.....	161,888.22	123,136	1.3147	.746
New Orleans.....	123,550.88	68,967	1.79	1.006
Newport, R. I.....	400,166.96	341,968	1.14	.565
Norfolk, Va.....	847,822.68	543,946	1.557	.880
Panama, P. I.....	28,712.17	25,759	1.1146	.7296
Parris Island, S. C.....	98,014.31	100,976	.97067	.52355
Pearl Harbor, T. H.....	19,779.75	16,519	1.197	.5857
Pelham Bay Park, N. Y.....	465,752.37	317,345	1.4676	.8489
Pensacola, Fla.....	122,998.31	104,185	1.1806	.8087
Philadelphia, Pa.....	450,187.23	241,606	1.863	.702
Portsmouth, N. H.....	164,781.98	93,556	1.7613	.9111
Puget Sound, Wash.....	150,307.81	102,327	1.468	.6675
Queenstown, Ireland <sup>1</sup> .....	205,151.70	35,898	5.71	.7108
San Diego, Cal.....	30,549.24	7,451	4.1026	.688
St. Thomas, V. I.....	25,226.70	16,329	1.54	.57
Washington, D. C.....	804,978.51	149,177	2.044	.771
Yokohama, Japan.....	21,508.14	7,887	2.912	.778

<sup>1</sup> Fractional.

TABLE No. 9.—*Statement of the activities of naval medical supply depots.*

	Number of requi- sitions.	Val requi- sitions.
New York, N. Y.....	6,448	\$4,312
Marine Island, Cal.....	505	198
Cannago, P. I.....	150	10

TABLE No. 10.—*Statement of the naval hospital fund.*

The condition of the fund is as follows:

Balance on hand July 1, 1918.....	\$167,6
Transferred to credit since July 1, 1918.....	2,629,1
Total.....	2,796,8
Expended since July 1, 1918.....	1,194,7
Balance on hand June 30, 1918.....	1,602,0

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NAVY DEPARTMENT  
BUREAU OF MEDICINE AND SURGERY

ANNUAL REPORT

OF THE

Surgeon General, U. S. Navy

CHIEF OF THE BUREAU OF MEDICINE AND SURGERY

TO THE

SECRETARY OF THE NAVY

FOR THE FISCAL YEAR

1920



WASHINGTON  
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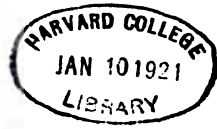
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*Navy Department*

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# REPORT OF THE SURGEON GENERAL, UNITED STATES NAVY.<sup>1</sup>

No. 132583-1

DEPARTMENT OF THE NAVY,  
BUREAU OF MEDICINE AND SURGERY,  
*Washington, D. C., October 1, 1920.*

To: Secretary of the Navy.

Subject: Annual report for fiscal year 1920.

This report concludes the description of our participation in the war discussed at length last year. The reports for the two years taken together give a comprehensive view of the Medical Department during the great struggle, and so will have an increasing historical value.

Unfortunately, peace has not restored previous conditions. The political upheaval leading to and resulting from war has created universal economic and other changes and like a tremendous tidal wave left its impress far beyond the scene of its most conspicuous manifestations.

Since demobilization began the Medical Department has been confronted with new problems, while those always attaching to matters of personnel have been magnified by the rearrangement of many aspects of life which might, to superficial view, seem remotely connected with any branch of naval administration and yet are keenly felt in recruiting for the Medical, Dental, Hospital, and Nurse Corps and in attempting to enhance their usefulness.

The rather general reaction against military pursuits consequent upon the losses, burdens, and sorrows of a campaign does not markedly affect those who were too young to participate in that campaign nor operate to weaken their interest in the military and naval professions. There is still a reasonable competition for admission to institutions like West Point and Annapolis. The Medical Department, however, in seeking to enroll persons of a maturer age suffers from such a reaction and from the financial disturbances that contribute to it. The opportunities which present themselves at this moment in civil life to recent graduates of medical, dental, and pharmaceutical colleges and of nurses' training schools are far more enticing than anything the Medical Department has to offer. In each of these fields the beginner has every prospect of obtaining more prompt and remunerative returns from his labor than were ever attainable in the past.

Perhaps the most radical changes due to the war, in the Medical Department, occurred in the naval hospitals which had to be enormously expanded with corresponding modifications of administrative details. A very considerable increase in the number of civilian

<sup>1</sup> All statistics cover the calendar year 1919.

employees became a necessity and though great reductions have been made in this force it is hoped that it will never be necessary to revert to the former status where the cleanliness of the hospital and much of the service in galleys and mess halls depended on convalescent patients. There were crying evils in the old system which more than offset the apparent saving in money. Inasmuch as medical attention is one of the inducements held out to encourage enlistment, the sick sailor naturally holds the Government responsible for a breach of contract and considers himself aggrieved when he is called on later to work his passage in a hospital. Light duty assignment as part of a curative routine is one thing, but it is a very different matter to have to depend on convalescents for indispensable service. As venereal cases are not suitable for many of the duty assignments, this class of patients appeared to the others to enjoy peculiar privileges in consequence of what is officially designated misconduct. Finally there was always the temptation to retain patients after they had been returned to duty, because without a certain number of convalescents the proper upkeep of the buildings and grounds and the general service could not be carried on.

The unavoidable but regrettable delay in being able to announce definitely the legal provisions for retaining officers and men who served with us in a temporary capacity during the war has resulted in our losing many who were temperamentally adapted to the demands of naval medicine and whose tastes inclined them to adopt it. They felt that they could not afford to neglect the advantageous opportunities immediately available in civil life for an uncertain status with the Navy. A much larger number of temporary affiliations had a distinct taste for the service and left it eagerly when their duty was done.

Very earnest attempts have been made during the past year to increase the professional attractiveness of our different corps. In the Medical Corps, particularly, special privileges for study and improvement have been afforded to a limited number of men whose qualifications seemed to justify training for special work. This measure has had your hearty approval and will be prosecuted with vigor.

But to retain in Government employment men and women of the highest qualifications it is not enough to render profitable the early periods of service. Such people look ahead and try to forecast their future. They may reasonably expect when advancing years, the home habit, and the force of circumstances will make it impossible for them to go on to hazard new ventures. The assurance of ultimate contentment through the gratification of legitimate ambitions is indispensable in securing candidates and so a guaranty of emoluments and rank proportioned to meritorious performance must always be the policy in seeking to replenish our numbers even if there is no great purpose of rewarding long and faithful service.

I am anxious to greatly broaden the scope of professional and technical work in the Medical Department for those who have displayed ability and earnestness as well as for the recent accessions because the attachment to the service of those who have had the greatest experience of it and their pride and interest in its development must always be the principal magnet to induce others to enter in their lot with us. Happily every expansion of opportunities for scientific endeavor, while increasing the satisfaction of the individual

members of the Medical Department, redounds to the benefit of our sick and injured.

I desire to bring to your attention two features of Medical Department service which are very commonly overlooked but which constantly affect the dispositions made in the Bureau of Medicine and Surgery. There is a radical difference between the general type of duty which develops efficiency in one corps and that which promotes it in another. For officers of the line, whose highest aim is competency to command a ship, a division, and a fleet, the sea is the best training school. In the case of the medical officer this is only true in part. For him, too, the paramount service is on the fighting ship where he functions in an important and unique capacity by performing military duties, concerting expert measures for the health of the crew, and giving succor in various emergencies. Ashore every type of medical skill is always procurable, but the needs of "those in peril on the sea" are what created the profession of naval surgeon. In order, however, to perfect himself in the medical features of his work, nay, merely to keep from going backward, he must periodically benefit by the influences flowing from laboratory, clinic, and operating theater, have opportunity for a comparative study of large and diversified groups of cases and above all enjoy the broadening effect of contact with other physicians. The cruise involves a distinct curtailment of these privileges, and long periods of sea service make for deterioration, however diligently he may struggle against it.

In view of these self-evident facts, length of sea service should not be given the same value in estimating the standing of a medical officer that it has for others. Furthermore, I would strongly urge a definite system by which, after each tour of sea duty, every medical officer whose industry entitles him to consideration shall have a definite period of study leave for the purpose of getting in touch with recent scientific advances and acquiring greater proficiency for future work, important if he is to be assigned to a naval hospital, and still more so if before embarking again he is to be engaged in recruiting for the industrial medicine now so prominent a feature of duty at a navy yard. These periods of study leave, with all proper guaranties that they will be utilized to advantage, can be granted, provided the corps is recruited to authorized strength. I can recommend no one measure that will go so far as this one toward maintaining and elevating that standard of medical efficiency which the Government has a right to demand and which is dictated also by common humanity in the interests of the sick. But, like every attempt to perfect on a large scale the service which the Medical Department desires to render, this departure depends absolutely on such a numerical sufficiency of personnel that individuals will not be discouraged and distracted by the insistent demands of routine duties from laboring to develop greater technical skill.

#### PERSONNEL.

**MEDICAL CORPS.**—In my last report it was earnestly recommended that Congress be asked to provide a means for medical officers holding temporary appointments and medical officers of the Naval Reserve Force who had given satisfactory service during the war to enter the regular Medical Corps with special advantages. The need of

this legislation became more and more evident as the year advanced. A great many medical officers of the regular service had entered solely on account of the war, and believing that they would be in a better position to see active service at the battle fronts as regulars they sought and obtained such commissions instead of remaining in the service enrolling as medical officers of the Naval Reserve Force. The regulars found the industrial situation in civil life after the armistice offering so much in the way of prospective emoluments and standing in the communities that they left the service under the temptation of more alluring prospects.

The regular corps began the fiscal year with a total official strength of 868 medical officers, and ended the year with a total of 655. During the year 16 candidates were commissioned in the Regular Enlistment, so that the total loss for which replacements were available amounted to 213. Altogether there were 229 separations from the service, including deaths, resignations, and retirements. The situation was alarming for a time, but it is believed that the inducements offered in the personnel features of the naval appropriation act of June 4, 1920, will attract a sufficient number of officers to the regular corps to put it upon a safe operating basis.

By the continuation of temporary appointments, together with the authority to employ the Reserve Force in numbers sufficient to keep a commissioned medical personnel up to the authorized strength of the regular Medical Corps, the service has not been subjected to an acute shortage so far.

The year began with 868 officers of the regular Medical Corps; 592 officers of the Medical Corps of the Naval Reserve Force; 107 medical officers holding temporary appointments; and 82 former pharmacists commissioned as temporary assistant surgeons (lieutenants). The year ended with 655 officers of the regular Medical Corps; 107 medical officers of the Naval Reserve Force; 193 medical officers holding temporary appointments; and 79 former pharmacists commissioned as temporary assistant surgeons (lieutenants). The authorized strength of the Medical Corps of the Navy is 1,225 medical officers, the existing vacancies number 570.

The shortage of specialists spoken of in my last report became more pronounced, and in order to obtain officers particularly developed in surgery, internal medicine, and in diseases of the ear, nose, and throat, the bureau organized during the year special classes for special instruction at the United States Naval Medical School. These classes were made up of regular officers who had just completed their first tour of sea duty. Each class was given an intensive course in general subjects for a period of eight weeks, during this time special scrutiny of every individual enabled the faculty to separate the class into three groups; that is, a group of medical officers desiring to follow internal medicine, a group desiring to follow operative surgery, and a group desiring to specialize in diseases of the eye, ear, nose, and throat. Each group then received special training along the lines required, and further observation developed the fact that of each group certain officers possessed greater adaptability than the others. These officers were designated for postgraduate instruction in civilian medical and surgical centers. The prospective operating surgeons all attended courses at the Mayo Clinic, Rochester, Minn. One group of officers desiring to specialize in eye, ear, nose, and throat work attended a course at the

York Eye and Ear Infirmary, while another group attended a course at Washington University, St. Louis, Mo. The internists were placed under instruction at the Pepper Laboratory of the University of Pennsylvania, Philadelphia, Pa. The period of attendance at these clinics is of four months' duration.

This plan enables the service to give intensive training at the Naval Medical School to a number of officers, and is considered of decided advantage to all who attend. Those who are selected for further postgraduate work have an added responsibility placed upon themselves to render to the Navy a service compatible with their opportunities. They are not considered specialists, but have been given a foundation which should make their future development easier. Those who have not attended these courses are not in any way denied opportunity to acquire specialties, nor are those who were not selected for clinical instruction after attending the United States Naval Medical School considered to have failed in any sense. While wishing to develop special skill along certain lines, all medical officers must still remain capable of carrying on general duties and the care of all classes of illness and injuries as exigencies require.

These courses are to be continued for the present with the hope that they may be ultimately extended, with some modifications, to older officers in limited numbers.

**DENTAL CORPS.**—The dental corps has, with the rest of the Naval Establishment, undergone a steady decrease in the number of officers on active duty since the signing of the armistice, and at present consists of a total of 169 officers. The distribution of these officers in the various classes is as follows:

Regulars.....	107
Temporary Regulars.....	35
Reserves.....	27
Total.....	169

A shortage of 33 per cent exists in the authorized quota of regularly commissioned dental officers, and while this shortage has been steadily increasing, due to resignations since the signing of the armistice, it is hoped that such a number of qualified officers may be recruited from the ranks of the reserve and temporary officers, recently rendered eligible for transfer, as to materially augment the strength of the corps. The present shortage is approximately 62 out of the 186 allowed.

In accordance with the scheme of distribution an endeavor has been made to keep at the various training stations a ratio of approximately 1 dental officer to 500 of the personnel, and this, while not an ample allowance, permits of systematic dental prophylactic instruction for the recruits as they pass through the training period, as well as admitting of time for dental prophylaxis and dental treatment.

At one of the large training stations a commendable system of rotation of duty for dental officers has been effected, and an officer reporting at the station is assigned for a month to each of the following duties:

1. Receiving building, examinations, charting and cleaning.
2. Dental office, headquarters, routine practice.
3. X-ray room, dental radiography.
4. Dental operating room, extractions, fracture instructions, general and local anesthesia, which latter embraces conductive and infiltration methods.
5. Regimental dental office, semi-independent.



This variety makes each officer conversant with the duties of the naval service in a comparatively short time and fits him for independent duty. Due to the nature of assignment in the naval service nearly every officer is by virtue of eventually given duty where he is not able to consult other of his corps, and for this reason the instruction outlined is considered particularly valuable, and the adoption of the training stations is contemplated.

Examinations for civilian candidates for the Dental Corps have been held at intervals, but the number of successful candidates has been small. However, the recent personnel legislation at least affords a new source of replacements.

NAVY NURSE CORPS.—During the fiscal year, the Navy Nurse Corps has continued the decrease which began with the signing of the armistice. The number released has made it necessary to reduce the nurse personnel of each hospital to a minimum. Nurses have been recalled from transport service, and from all detachments except the details as instructors at the training schools; and at dispensaries where the character of the work necessitates a permanent assignment. Exceptions were also made in assignment of nurses to the U. S. S. *Henderson* and the U. S. S. *Mercy*, for temporary duty. The result of these assignments has been further proof that the nurses are well qualified for and are adaptable to sea service.

Although several factors enter into the decrease in the number of nurses, the chief reason is the insufficient pay which these specially trained nurses receive, compared with the monetary return for sea service. Nurses in civilian institutions requiring the same standards, and the remuneration received at present in private duty. It is the fact that the home life of the nurses in the Navy is particularly hard, and the definite eight-hour period of duty which is required throughout the service is appreciated. It must be conceded, however, that nurses who render efficient service in military and naval detachments must be above the average in ability to administer to the professional duties, and must possess unusual tact and adaptability. Nurses with these qualifications can command higher pay than the law allows to members of the Nurse Corps. They have been clearly put before various committees in Congress during the past year. Unfortunately, only 20 per cent increase in pay was authorized by law and this increase is not considered sufficient to counterbalance the increased cost of the necessary articles of clothing which the nurses must provide for themselves.

Another factor demonstrated from the requests for release is the reluctance to continue in the service when assigned to remote stations which offer little in the way of educational or social advantages. The actual professional work at these stations is essential and necessary and the nurses recognize this fact, but with no other emoluments to counteract the isolation, it is difficult to maintain happiness and contentment which are necessary for efficient service. The commanding officers of several remote stations have recommended that the maximum period of duty at these stations should not exceed one year, and it is hoped that compliance with this recommendation will reduce the number of requests for release in the coming year.

During the fiscal year, the number of United States Navy nurses appointed was 92, of which 20 were transferred from the

and 53 were transferred from the Naval Reserve Force. The number of Reserve Nurses, United States Navy, appointed to active duty was 181, of which 13 were transferred from the Naval Reserve Force. During the year the decrease in the corps is noted under the following heads: (a) Nurses United States Navy: Honorably discharged at their own requests, having completed the period of service to which they obligated themselves, 32; discharged by reason of the recommendations of boards of medical survey, 7; resignations submitted and accepted for "good and sufficient reasons," 30; discharged for cause, 2. (b) Reserve Nurses, United States Navy: Released at their own requests, 256; discharged by reason of medical surveys, 10. (c) Nurses United States Naval Reserve Force: Released from active duty by reason of disenrollment, or on requests for inactive status, 433; disenrolled by reason of medical survey, 6. Summarizing this report, 190 nurses were added to the service, and 783 were released from the service; and at the beginning of the present fiscal year, the corps numbers 533.

The recurrence of the influenza epidemic necessitated a rapid increase in the number of nurses at the various hospitals and telegraphic summons to duty were sent to nurses on inactive status. To the 125 telegrams sent by the bureau, 85 favorable answers were received, and from this list a sufficient number of nurses was assigned to temporary active duty to enable the hospitals to meet the rapid increase in patients under less trying conditions than in former years. It is a subject for regret that many of the nurses who volunteered their services for the emergency were retained beyond the date of desired release. In the majority of instances, the nurses cooperated despite their disappointment, but in some cases the delay resulted in discontent and unhappiness which affected the entire nurse personnel of the station.

Notwithstanding the decrease in the number of nurses appointed and the increase in the number of discharges, a particular effort has been made to meet the demands for additional nurses in the island possessions. It is realized that a temporary abeyance of the work of the nurses at these distant stations would result in loss of interest among the native nurses which it would require a disproportionate period to regain. The work in American Samoa continues to develop and the assignment of interested regular nurses resulted in a noticeable impetus. The appreciation of the work of the Medical Corps and of the nurses has been made the subject of a special letter from the Governor of Samoa to the Secretary of the Navy in which he has stated:

The Navy nurses assigned here are always of the highest type, admirably suited for professional duties and especially adapted for the training of native nurses, besides meeting all other requirements. Moreover, as a branch of the Medical Corps of the Navy they have contributed to the naval surgeon's efficient quarantine restrictions, which, combined with vaccination and other hygienic measures, have enabled the naval government, with discipline administered in a kindly but thorough manner, to keep influenza away from American Samoa without a single case having developed.

The present chief nurse in Samoa, Miss Bernice Mansfield, has developed the nursing work at the naval dispensary, resulting in a greater field in which the instruction of the native nurses can be carried on and giving greater sources for practical demonstration. Grace Pepe, a native graduate nurse, has returned to Samoa after a course in nursing at the United States Naval Hospital, Mare Island,

Calif., and at the Children's Hospital in San Francisco. It is believed that her example will result in an increased effort on the part of other nurses and a greater number of applications for a course in nursing from the better class of native women.

In order to encourage the young women of Guam to take a course in preparatory nursing, it has been recommended that this course be made a requirement for the native school teachers. Lessons in sanitation, hygiene, and home care of the sick have resulted in healthful conditions throughout the island. The development of this practical and welfare work is also meeting with encouragement in the Virgin Islands. Classes of probationers in the municipal hospital have increased. The possibility of affiliation and further instruction with general hospitals in the United States is to be given careful consideration and a definite policy will be decided before the present class has completed the required period of instruction.

The training school for native girls in Haiti was established in August, 1916, in accordance with the recommendation of the medical officer who was acting as sanitary engineer for Haiti. The acting chief nurses in the Navy, Miss Lucia Jordan, Mrs. Lincoln, and Miss Elizabeth D. Bushong, with the cooperation of small groups of Navy nurses, have successfully carried on the school and the first class, numbering 22 native girls, is about to graduate. There is no Navy affiliation with the duty in Haiti and for this reason and in consideration of the shortage of nurses in the naval hospital it was recommended that this work be transferred to the American Red Cross. The recommendation was approved and the work of Navy nurses in Haiti ceases with this fiscal year.

The increased work in supervision and instruction and also the assignment of members to the additional dispensary details resulted in examinations for promotion being held for 11 nurses and their names have been added to the list of chief nurses on duty, while the names of others have been placed on the eligible list for promotion at a future date.

The Army reorganization bill approved June 4, 1920, gave members of the Army Nurse Corps relative rank in the United States Army. The law establishing the Navy Nurse Corps, May 13, 1917, gave to members of the corps the same pay, privileges, emoluments, and allowances "as are now or may hereafter be provided to members of the Army Nurse Corps." In view of the wording of the law it might be construed that the privilege granted to members of the Army Nurse Corps in the reorganization bill may also be extended to members of the Navy Nurse Corps. The individual rights and privileges which follow the passage of this act have not yet been decided by the War Department. After designating the rank of members of the Navy Nurse Corps, the War Department shall be given to various grades in the Army Nurse Corps, the following further states:

And as regards medical and sanitary matters and all other work within the scope of their professional duties shall have authority in and about military hospitals after the officers of the Medical Department.

This status which is by law given to members of the Army Nurse Corps has been given to members of the Navy Nurse Corps since 1917 by Navy regulations. The statement embodied in Navy Regulations 3322(5) allows no misinterpretation with regard to the professional status of members of the Navy Nurse Corps.



There should also exist a more general sympathy from officers and men of the Navy for members of the Nurse Corps and a better comprehension of the trying conditions under which the nurses assume their professional work after appointment in the naval service. The nurses are as a rule not versed in military matters and are ignorant of the meaning of the various insignia and devices noting rank and rate; they are also unused to the method of utilizing the services of convalescent patients in and about the naval hospitals. They are unable to immediately form a correct conception of the status of the various medical officers attached to the station and as a rule they have difficulty in understanding their relationship to their coworkers who are members of the Hospital Corps. The nurses realize their ignorance with regard to Navy conditions and because they have no definite knowledge they are at first timid and lack the assurance necessary to establish confidence in their professional qualifications. Under these unusual conditions the nurses experience difficulty also in demonstrating the executive ability which has been developed in civilian hospitals. They conceive that there is a lack of support in their administrative work in the Navy and their discouragement frequently shows itself in requesting release from the service. The present situation is less difficult than when divided authority existed in the management of the wards, but there is need for a still greater spirit of cooperation and helpfulness among the officers and enlisted men toward members of the Nurse Corps. The members of no other branch of the naval service are required to immediately assume their duties without preliminary instruction in "the ways of the service." It would seem, therefore, that a preparatory course should be given to nurses before requiring them to assume active duty in the naval service. This course would make it possible to instruct them in the regulations which have been established for the good of the service and would enable them to become familiar with the Naval Establishment from the administrative standpoint, as well as in connection with the patients to whom they will be required to give nursing care. The desirability of retaining in the corps nurses who have acquired knowledge of the naval service, thereby increasing their value in professional and administrative work, is evident. It is believed that a larger number of grades in the corps should be authorized. Additional grades between nurse and chief nurse, and the consequent promotion with increased pay as the result of length of service and passing the required examinations, would go far to maintain interest in the corps and would be a stimulus for increased effort and educational attainments.

There has been no enlargement of the duties of the dietitians who have been attached to the service. It has been accepted that there is a marked improvement in the dietary of the institutions, but in view of their indefinite connection with the naval service there has been general dissatisfaction amongst the dietitians. It is believed that greater cooperation and more practical improvements would result if the dietitians could become a definite part of the Navy Nurse Corps, and the privileges and emoluments given to these specialized women should be revised and designated, so that their professional importance would be more generally recognized.

The wording of the gratuity act incorporated in the Navy appropriation act approved July 4, 1920, recognized the Nurse Corps as a

part of the Naval Establishment and included nurses of the service amongst those whose dependent relatives would receive six months' pay from death resulting from illness or injury in duty.

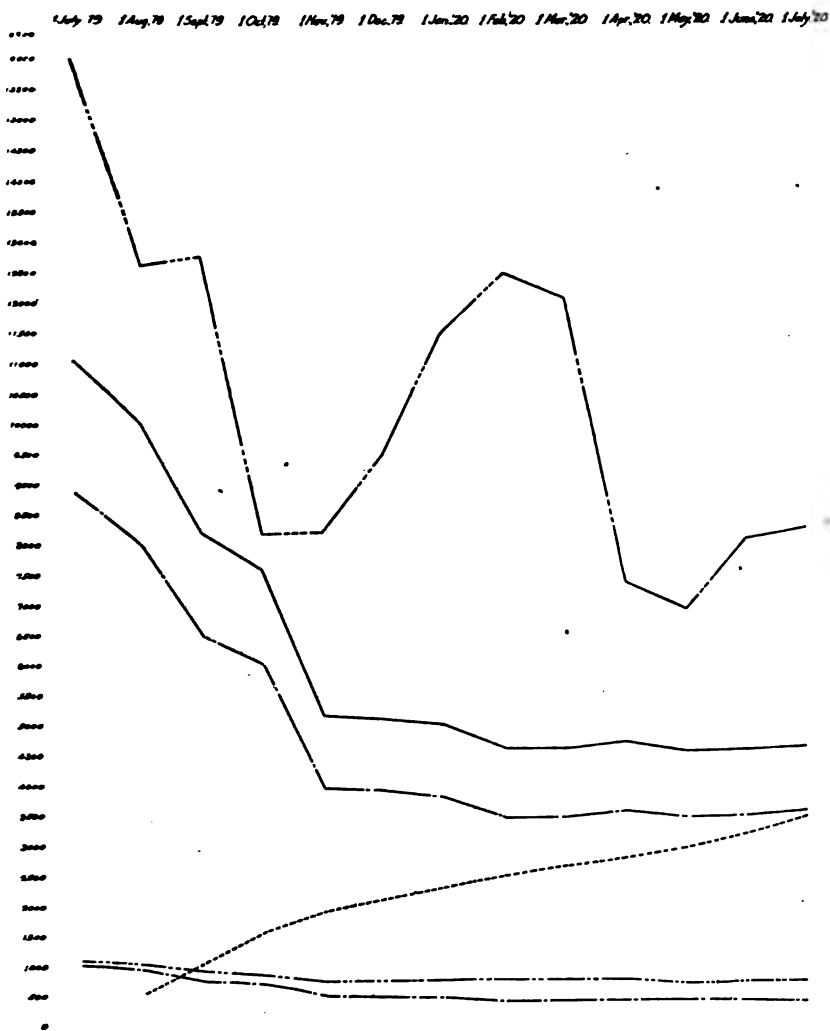
The year's work in the Navy required the final sacrifice from the following members of the corps, who died from illness contracted while on duty:

Floy Ben Bow, nurse, United States Navy.  
 Beda M. Bergstrom, reserve nurse, United States Navy.  
 Bride M. A. Flannery, reserve nurse, United States Navy.  
 Eleanor L. Harbeke, reserve nurse, United States Navy.  
 Agnes Hogan, reserve nurse, United States Navy.  
 Laura H. Schneiberg, nurse, United States Naval Reserve Force.

**HOSPITAL CORPS.**—Demobilization of hospital corpsmen was carried out as rapidly as was consistent with the welfare of the sick and injured in our naval hospitals. On July 1, 1919, there were 7,464 members of the Hospital Corps on duty. By October 1 there were 7,464, and of this number 1,924 had been recruited since the signing of the armistice, showing that within this three month period 5,484 trained hospital corpsmen had been returned to active life. Of the 16,125 hospital corpsmen who were on duty November 11, 1918, 1,139 remained in the corps on January 1, 1920. On that day the total number in the corps is 4,596, while the authorized strength is 5,964, a shortage of approximately 1,500, or 25 per cent. Due to lack of older applicants, it became necessary for a time to enlist men not 18 years of age as apprentice seamen for hospital corpsmen in order to supply the number of hospital corpsmen considered necessary to perform essential ward work and to allow a small number of trained men to perform professional duty in connection with the care of the sick and injured who could not be demobilized at the time the personnel of the Navy was returned to active life.

A great number of hospital corpsmen, in their desire to be released, ignored the claims of the sick and injured who were returned at this time from the hospitals of the war zone. There was a humanitarian reason for their remaining in the service until the hospitals were less crowded with patients. Not only the men of the Hospital Corps, but their friends at home and in public exerted such insistent pressure to obtain the release of particular individuals that all those eligible under the law were returned to active life. This precipitated a crisis in the Hospital Corps which could only be met by temporarily discontinuing the vitally necessary courses of instruction at our Hospital Corps training schools and placing all available hospital corpsmen, regardless of training, in our naval hospitals to meet the emergency.

On January 1, 1920, the Bureau of Medicine and Surgery was authorized to resume the six months' course of instruction at the Hospital Corps schools discontinued since May, 1917. In the effort to recruit a sufficient number of men to fill vacancies existing in the corps, recruits are accepted who are temperamentally or otherwise unsuited for this type of duty, and all such should be encouraged to change their rating to other branches of the service. This elimination of unsuited recruits should be accomplished at the Hospital Corps schools, and even though the Hospital Corps has but slightly over half of its authorized



LEGEND:  
 ADMISSIONS TO SICK LIST, ENTIRE NAVY  
 TOTAL HOSPITAL CORPS  
 PH N.S.C. PH N.S.C. N.A.C. N.A.C.  
 CHSP (HOSPITAL CORPSMEN)  
 HOSPITAL CORPSMEN, FIRST CLASS  
 TOTAL ONGOING ENLISTMENTS

Top line: Admission to sick list as affected by demobilization, influenza epidemic, and permanent personnel increase.

Second line: Shows total of strength of Hospital Corps.

Fifth and sixth lines Represent fully trained Hospital Corpsmen available.



ber, the Bureau of Medicine and Surgery firmly believes that only those men should be accepted or retained who give promise of being a credit to this branch of the service and who have the preliminary education, in conjunction with a sense of responsibility, to properly perform the duties in the care of the sick and injured in which every person in the Navy, a potential patient, should be vitally interested. Deserving members of the Hospital Corps should be promoted, yet it is most essential that the standard of the corps be maintained; therefore the requirements of the examinations for and the time to be served in each rating have been increased, and only fully qualified men will be advanced to the higher ratings.

Since the armistice 14,309 trained hospital corpsmen have been released and 4,430 new members recruited. It takes seven months for a new recruit to pass through his period of training at one of our training stations and Hospital Corps training schools. The reason for the seven months' course of instruction is apparent when it is brought to mind that these men are being trained in the art and science of administering to and caring for the sick and injured of the Navy, and therefore deal not only with the material side of the Navy, a financial responsibility, but also with the human side of the Navy in relation to the lives of its personnel, both officers and men, where mistakes can not be repaired, as when damage to material is done. Therefore it is impracticable for the Bureau of Medicine and Surgery to place the stamp of approval upon hospital corpsmen who have not received a full course of instruction and who have not developed a sense of responsibility and a liking for their assigned professional duties. After this training a hospital corpsman is sent to a naval hospital or station for duty and additional instruction in the work of his rating. From this duty he is transferred to a ship, and if his instruction has been continued at a hospital he should be a valuable addition to the medical department of the vessel. The type of hospital corpsman received by the ship should give the commanding and medical officers a fairly keen insight as to the efficiency of the hospital from which he was received. There is no better criterion of a military institution than the individuals who are transferred and supposed to be the finished product of the officers concerned; yet some commanding officers seem to consider that orders to transfer enlisted men from their command are promulgated for the sole purpose of allowing them to rid their commands of all the undesirables.

It is earnestly recommended that the attention of all officers be brought to the need of intensive training of hospital corpsmen in order that competent petty officers may be developed. Members of examining boards should take particular pains to see that all hospital corpsmen examined by them are qualified in every respect for the rating for which they are examined, and commanding officers should exercise care in making recommendations regarding candidates appearing before such boards to see that only those men who are qualified to hold the advanced ratings are recommended, and such recommendations should be made on the qualifications for the higher rating and not for the one the candidate is holding. A man may be an excellent pharmacist's mate first class who would make a poor chief petty officer. While the Bureau of Medicine and Surgery desires to see all worthy men promoted, it is not desired that a man obviously unfitted to become a chief petty officer be promoted to that

rate. One of the arguments used to have the first and second petty officer ratings established in the Hospital Corps was that were men in the corps who did not possess the basic qualification chief petty officers, but were excellent nurses, first-aid men, and masters, and should not be promoted to a higher rating than officer, first class. It is believed that there are men of this type. Hospital Corps to-day and commanding officers should not recommend a man for chief petty officer for the sole reason that he is a hard worker and conscientious in the performance of the duties rating.

Attention is invited to the increased demand for the service of hospital corpsmen as a result of the Federal compensation (which requires certain medical service to be rendered the civilian personnel employed by the Navy Department at navy yard and industrial stations) and to the demand which will be made of Hospital Corps personnel in connection with the care at naval hospitals of patients under the Bureau of War Risk Insurance. These patients are transferred the present allowance of 3½ per cent of the authorized strength of the Navy and Marine Corps will be inadequate.

Chief pharmacist's mates and pharmacist's mates first class ratings are considered by the Bureau of Medicine and Surgery as independent duty ratings; that is, these men are sufficiently trained and competent to carry on essential emergency treatment with small detachments of marines in the field, at naval radio stations, on destroyers, tugs, and other small ships to which no medical officer is attached. To supply this demand in addition to the ordinary needs at sea and ashore not less than 700 chief pharmacists' mates and 1,200 pharmacist's mates first class are required. The Bureau of Medicine and Surgery finds it very difficult to recruit a sufficient number of hospital corpsmen to give proper medical attention to the Navy personnel, and it is strongly recommended that the necessity of enlisting the authorized quota of hospital corpsmen be brought to the attention of recruiting inspectors and officers in charge of recruiting stations. At the present time the discharges by reason of expiration of enlistment, indefinite furlough, and other miscellaneous causes reduce the number of applicants who enlist or reenlist.

Because of the increasing demand for trained men, and to those already trained in the service, every encouragement and reasonable opportunity for advancement must be offered, and I feel it my duty to again strongly urge that those pharmacists and chief pharmacists who now hold commissions in the Medical Corps be allowed opportunity to retain their commissions in the Medical Corps of the permanent Navy as administrative or technical officers. The demand for the services of such officers in the ranks of ensign, lieutenant (junior grade), and lieutenant is becoming more evident and imperative in the administration of our large naval hospitals, hospital stations, schools, and on duty independent of a medical officer. These officers perform duties in connection with medical supplies and commissary work at our large institutions and on hospital ships. They are given technical duties which can best be performed by them because of their previous education and training.

In accordance with the provisions of the naval appropriation act of 1920 there are 79 pharmacists now holding the temporary rating of lieutenant, Medical Corps, United States Navy, who are eligi-

transfer to the permanent Navy in the rank for which they may be found qualified, not higher than the temporary rank held at the time of transfer. This is an excellent piece of legislation for the service and was designed by Congress to allow those officers holding temporary commissions in the Navy to be given the opportunity to qualify for permanent rank, but it is doubtful if many of the pharmacists mentioned can qualify for permanent duty as *medical officers*. The bureau in continuing to advocate the passage of a modified Darrow bill, or a substitute therefor, is willing at this time to give up a corresponding number of authorized medical officers in order that no added expense nor expansion of the Medical Corps may be used as an argument against allowing these officers to transfer to the permanent Navy.

The status of the pharmacists commissioned in the Medical Corps is such that it is practically impossible for any to qualify for the professional duties of the rank they now hold, as only a few of them have the degree of doctor of medicine, and this status is not entirely satisfactory to the Bureau of Medicine and Surgery nor to the officers so commissioned. The title under which they were commissioned, i. e., assistant surgeon, implies a medical education, and the resulting anomalous position practically inhibits further promotion among the members of this group unless these officers can be commissioned in the Medical Corps and carried on the Navy Register as officers for nonmedical or technical duty only, as is now done for those line officers who are commissioned and carried in the Navy Register as officers for engineering duty. If this is impracticable under present law or administrative action, the enactment of legislation creating the grade of surgeon's assistant, which was proposed by me at the last session of Congress and approved by you and the Chief of the Bureau of Navigation, is urgently recommended. On this subject you forwarded a letter of approval, dated May 7, 1920, to the chairman of the Committee on Naval Affairs, suggesting that the following proviso be incorporated in the naval appropriation bill:

SUGGESTED PROVISION.

At the end of section 3 of amendment No. 106, page 62, line 24 of the naval appropriation bill, change period to colon and add: "*Provided further*, That chief pharmacists and pharmacists holding temporary commissions in and appointed in the permanent grade of surgeon's assistant, which grade is hereby established for the purpose, with rank and precedence as herein provided, shall hereafter be eligible for promotion as surgeon's assistant to higher rank not above that of lieutenant commander."

These officers have proved their value to the service in a commissioned grade during the war and prior to the war by many years' service as warrant officers, and to continue their valuable services it is urged that the legislative steps necessary to establish the grade of surgeon's assistant in the Medical Corps of the Navy be taken during the next session of Congress.

The Hospital Corps training schools at Newport, R. I., Great Lakes, Ill., and San Francisco, Calif., have continued to do excellent work in the instruction of Hospital Corps recruits. It is believed that these schools may be more economically and efficiently administered in close proximity to large naval hospitals, where the recruit may be given practical as well as didactic instruction, and it is further believed that the overhead expense of these schools may be partly

absorbed by the existing overhead at naval hospitals. It is then recommended that all Hospital Corps training schools be operated as independent units in connection with and in close proximity to such large naval hospitals as may be designated. The course of instruction at these schools has again been lengthened to six months and it is believed that if it is found practicable to continue a course of this length the recruit hospital corpsman will be graduated with a good groundwork on which to begin his naval career. Commanding officers of ships and stations and all officers of the Medical Department have been asked to cooperate in the instruction of hospital corpsmen and to see that the instruction of these men is continued on ships and at naval hospitals and stations, to the end that all men may be fitted for their work and for advancement in rating.

The Pharmacist's Mates' School, Naval Operating Base, Hampton Roads, Va., is for advanced instruction and has demonstrated the value of a school where the department may assign petty officers of the Hospital Corps for advanced instruction to fit them for duty afloat and at small shore stations independent of a medical officer. This school is also used for the instruction of chief pharmacy mates in special subjects and to round out their training and to better fit them for the duties of chief petty officers of the Hospital Corps. The institution is splendidly equipped for its purpose and has been a most valuable factor in the training of Hospital Corps personnel. When the opportunity has offered, classes of pharmacists (warrant officers of the Hospital Corps) have been conducted at the Pharmacist's Mates' School, Hampton Roads, Va., with marked success.

The Bureau of Medicine and Surgery, by authority of the Surgeon General, Department, established and is continuing a correspondence course for naval pharmacists. During the year this course was altered to provide the exchange of questions, answers, critiques, etc., to the issue of a subject matter for information and study. This course, while requiring much work in the assembling of suitable material for distribution, has proved of great value, and it is believed that it should be continued. The issue of the Supplement to the Naval Medical Bulletin, published especially for the Hospital Corps, is regarded as one of the best means of educating, communicating with, and maintaining the contentment of the members of this corps. Through the pages of the Supplement the bureau can bring to the attention of the members of the Hospital Corps matters of the utmost help to them and also such instruction papers as the bureau deems desirable. During the year the Drill Book for the Hospital Corps has been thoroughly revised, enlarged, and reprinted. It now includes the latest methods, as developed during the war, for evacuation of the wounded, and also contains a chapter on expeditionary duty. It contains much valuable information in addition to the strictly military

#### RETURN OF SICK AND WOUNDED.

In November, 1919, as my last annual report came from the Surgeon General and was being distributed, the United States Cruiser and Transport Force having finished its appointed task, was disbanded, the ships comprising it either going out of commission, receiving other assignments, or resuming the duties that formerly engaged them. There were one hundred and forty-one ships ranging in tonnage from two or



thousand to the *Leviathan*, displacing 69,000 tons, had accomplished what the adversary confidently asserted was impossible and a worthy and not inconspicuous part of the great achievement was contributed by our Medical and Hospital Corps. Never perhaps in the history of war have joint military and naval operations been conducted with more hearty cooperation than in this instance. For the sake of historical accuracy and for the information of the general reader, it is proper to remark that many of the ships loosely designated by the careless or ignorant as Army transports were Army transports only in that they carried troops, for they were convoyed, navigated, and manned by the Navy, every detail of internal administration, including the necessary sanitary disposition of troops and the treatment of the seriously sick being in the hands of naval personnel, while the return of practically all sick and wounded was intrusted to us after some experience of other methods had proved unsatisfactory.

The details of transportation of troops and return of sick and wounded were fully dealt with last year. By way of recapitulation it may be said that the work was done in ships of five different types: i. e., (1) Navy transports, (2) cruisers and battleships, (3) merchant vessels of German register assigned to the service of the United States by the provisions of the armistice, (4) cargo vessels belonging to the United States Army Quartermaster Department, having complete Navy standard equipment for the medical department and manned and navigated by Navy personnel, and (5) Navy hospital ships.

*Transport and escort duty by United States and foreign navies up to signing of armistice.*

Number of passengers carried between May, 1917, and Nov. 11, 1918:

By United States Navy transports.....	911,047
By British ships.....	1,006,987
By British-leased Italian ships.....	68,246
By other United States ships.....	41,534
By other ships, French and Italian.....	52,066
Percentage of transportation by:—	
United States Navy.....	43.75
British.....	48.25
British-leased Italian ships.....	3
Other United States ships.....	2.5
Other ships, French and Italian.....	2.5

Number of passengers carried by 10 leading ships of United States Cruiser and Transport Force:

To Europe.....	374,679
Brought back.....	2,366

Cruiser and Transport Force June 14, 1917, to October 1919:

Number of vessels manned and operated by United States Navy.....	141
Number of Navy cruisers and transports carrying troops.....	45
Complete round trips made (before armistice, 306; after armistice, 304)	610
Total passengers carried over.....	870,324
Do.....	19,275
Total passengers returned.....	961,723
Total passengers handled.....	1,851,322
Number of battleships and cruisers used for return of troops.....	25
Complete round trips made after armistice.....	108
Total passengers returned from Europe.....	145,249
Converted ships manned and operated by Navy, converted after armistice to return troops.....	71
Complete round trips after armistice.....	246
Total passengers returned from Europe.....	441,986
German ships used to return troops after armistice.....	9
Complete round trips.....	692½
Total passengers returned from Europe.....	138,120

*Sick and wounded returned by United States Navy Cruiser and Transport*

	Army.		Navy.		Marine
	1918	1919	1918	1919	1918
Mobile.....	26,220	94,855	611	1,854	840
Litter.....	4,300	10,294	108	358	251
Genito-urinary.....	310	1,024	194	696	20
Insane.....	2,091	4,512	58	47	16
Tuberculosis.....	1,487	3,040	78	72	30
Contagious.....	732	2,206	71	123	2
Dead.....	444	134	102	23	70

Total Army patients returned.....

Total Navy patients returned.....

Total Marine patients returned.....

Grand total.....

Summaries of a few reports from ships of these various types are subjoined.

*U. S. S. George Washington.*—Prior to going out of commission in November, 1919, this ship returned 113 sick and wounded from the Army, Navy and Marine Corps. Owing to the great amount of leave taken, a large proportion of admissions to the sick list was for venereal disease; syphilis 10, chancroid 42, gonorrhea 178. During the year 16 major operations were performed aboard, all successful.

*U. S. S. Finland.*—During the year 1919 the following sick and wounded were returned from France.

Personnel.	Bed.			Ambulatory	
	Army.	Navy.	Marines.	Army.	Navy.
Officers.....	30		1	208	1
Enlisted men.....	281		3	2,836	1
Total.....	311		4	3,044	2

They were classified thus:

Sick.....

Wounded.....

Insane.....

Tuberculosis.....

Total.....

There were eight deaths among the Army contingents in the year 1919.

*U. S. S. Graf Waldersee.*—This ship was assigned to our transport service by the terms of the armistice and was commissioned April 1919. She had previously been subjected by the Germans to alterations looking to the accommodation of some 2,000 troops and had been utilized to some extent during their operations in the Baltic. When taken over by our Navy she was filthy, having been long in ordinary at Hamburg with a small crew chiefly for the maintenance of the room and consisting largely of women. Much alteration in plan and general overhauling and cleaning was required to make the ship habitable for Americans. On the first voyage to America

passengers (500 troops) were carried. In May 4,100 troops and 268 passengers were returned. Owing to a collision on the outward run from New York in June the ship was disabled. Many valuable stores were damaged due to flooding of storerooms but the bulk of them were salvaged by the hospital corpsmen, who were cool and courageous. The last transportation of troops was in August, when 1,400 troops and 268 passengers were brought from Brest. In mid-ocean a case of septicemia was taken aboard from a merchant vessel and an operation performed which resulted in recovery.

*U. S. S. Imperator.*—This ship was turned over to the Inter-Allied Commission by the Germans on May 5, 1919, at Brest. She was in bad condition, many gaskets and most of the electric wiring having been removed prior to delivery. An American crew repaired all damages in 10 days. Additional blowers and air vents were installed to fit her as a troop ship, along with standees, washstands, toilet facilities, and shower baths.

Between May 5 and November 24, 1919, 25,000 Army troops were brought home. Only 32 were transferred as sick. Sixteen major operations, including 3 emergency appendectomies in pus cases, were performed.

*U. S. S. Koningin der Nederlanden.*—Between January 1 and November 7, 1919, this vessel made five voyages, returning 10,295 officers and men of the Army.

*U. S. S. Leviathan.*—During the year 1919 this ship made nine round trips between New York and Brest, bringing home 85,758 Army passengers, of whom 8,279 were sick and wounded. There were 33 deaths in the Army contingents, due mainly to pneumonia complicating influenza. On the voyage of February 26, 200 cases of influenza were admitted, 1,002 sick and wounded and 100 cases of tuberculosis, 40 of them stretcher cases, were transported. The number of surgical dressings done on this voyage was 963 or 107 daily. It was a mistaken policy to transfer to the United States practically moribund tubercular soldiers. The death, in transit, of some of these cases was markedly depressing to the personnel.

*U. S. Hospital Ship Mercy.*—This ship has been fully described in previous reports. During the year 1919 the *Mercy* has not performed, strictly speaking, hospital ship duty, but has been used mostly as an ambulance ship, bringing wounded soldiers, sailors, and marines to the United States from Europe and transferring Navy and Marine Corps patients from one naval hospital to another on the Atlantic Coast. This duty she performed efficiently and with dispatch.

At the beginning of the calendar year 1919 the *Mercy* was at St. Nazaire, France, and on January 7 sailed for New York with 388 Army patients, who were delivered at the embarkation hospital, save for one who died en route. A brief stop was made at Bermuda for coal. The *Mercy* sailed from Bordeaux on February 27 with 383 Army patients for the same destination; as before, losing one patient, a case of chronic pulmonary consumption. A death from the same disease occurred on the third trans-Atlantic voyage, starting from St. Nazaire with 384 Army patients on April 6. On the fourth and last voyage from France 386 Army patients were brought over.

The *Mercy* then joined the train of the United States Atlantic Fleet and conveyed patients from one hospital to another as their best

interests and those of the Government demanded, 2,976 being men in all.

*U. S. S. Mobile.*—This ship, originally the steamship *Cleveland* of the Hamburg-American Line, was recommissioned at Spithead, England, on March 26, 1919, by the same terms as those mentioned above, the medical stores being received from the United States Naval Medical Supply Depot, Liverpool. Prior to going out on mission this vessel brought back from Brest 21,319 Army passengers. There was one death.

*U. S. S. New Hampshire.*—From January until the end of the year the ship acted as a troop transport, plying between Newport and New York in the United States and Brest, France. Most of the infectious diseases developing were during this period. There were also two cases of cerebro-spinal meningitis in the Army personnel during the April trip.

The general routine of the medical department when troops are aboard seems to have been similar to that used on naval transports, and from reports was entirely satisfactory. On each trip the ship carried about 1,200 troops.

A dish-washing machine has been installed in the scullery, with steam connections, making it possible to sterilize dishes after each meal. This is a very valuable sanitary improvement in the prevention of the spread of epidemics, and particularly diseases of the droplet infection type. The method of sterilizing dishes is as follows: The dishes are stacked in galvanized metal trays, run through a mechanical washer, in which they are flushed, and bathed in steam, boiled by a constant flow of live steam. Then these trays of dishes are placed in a copper tank filled with hot water and allowed to stand for a period of 20 minutes before removing to dry.

*U. S. S. North Carolina.*—From January 1 to July 2 this ship was engaged in transport duty. During this period 8,962 officers and enlisted personnel of the Army and Marine Corps were transported from Brest to New York. An average of 1,473 additional men were on board for 11 days each westbound trip of this vessel from Brest, France, to the United States.

In summing up the sick rate of the 8,962 troops transported during the period covered by this report, it is found that only 231 men were admitted to the sick list, with a total of 231 sick men. Fifteen of the above admissions had to be transferred to an American hospital upon the arrival of the ship in the United States.

As the ship during its westbound voyage had considerably more than twice as many souls on board as she was designed to berth, this excellent sanitary result is attributed to the indefatigable energy of the officers concerned in the sanitation of the ship.

*U. S. S. Pocahontas.*—Between January 1 and November 7, 1918, this vessel made five voyages, bringing back to America some 1,580 German civilian prisoners and taking over 1,580 German civilian prisoners who had been in detention camps in this country.

*U. S. S. Rijndam.*—This vessel served as a transport from Brest, France, to New York, from January 1 to October 1, 1918, and made 13 round trips. From January 1 to October 1, 3,928 sick and wounded were brought home.

*U. S. S. Santa Cecilia.*—This cargo vessel was converted for transport service and commissioned March 10, 1919, and proved admirably adapted and equipped for the purpose. She was utilized

September, 1919, and by that time had returned 6,200 soldiers to the United States.

*U. S. S. Santa Malta.*—The keel of this ship was laid on April 2, 1918. She was launched December 4, 1918. Her trial run was May 16, 1919. She was commissioned the following day and in five more days was on her way to St. Nazaire, France. In just one month from the date of the trial run she landed 1,742 officers and men in Charleston, S. C. By August 30 she had made three round trips and returned a total of 3,818 officers and men. Placed out of commission November 4, 1919.

*U. S. S. Zeppelin.*—This was a new ship which had been lying at Bremerhaven until turned over to the United States Government in March, 1919, at Cowes, England. She sailed from Cowes on March 30 manned by men from our naval station at Plymouth, which was being demobilized at that time. In the five voyages made prior to October 1, 17,800 Army troops were brought home.

#### CARE OF THE DEAD INTERRED ABROAD DURING THE WORLD WAR.

Since my report for last year the work of returning to the United States or providing permanent sepulture abroad for the bodies of Navy and Marine Corps personnel who died or were killed during the World War has been actively continued, and, except in France, Belgium, and Germany, now may be considered as practically completed. Other than in the above-mentioned countries only 12 bodies are to remain in foreign soil, and in these cases the Navy has purchased the burial sites, erected substantial granite headstones, and provided for perpetual care of the graves, except in two or three instances where the relatives have assumed entire charge. In all, over 700 of our dead have thus been cared for in accordance with the established customs and traditions of the Navy, under conditions which often appeared insuperable. The greatest credit is due Lieut. Commander L. W. McGrath, Medical Corps, United States Navy, and other officers of the Medical Corps, whose initiative and resourcefulness alone have made possible this accomplishment.

As previously reported, the removal of American dead from France and Belgium was prohibited during the war and subsequently was made the subject of serious objection by France because of economic conditions in that country. However, in November, 1919, yielding to continued pressure from the United States, the French Government authorized removal of all American dead from the interior of France, the territory lying outside of the so-called "zone of the armies," the southern limits of which were defined by the "south-western edges of the Department of the Somme; western and southern edges of the Department of the Oise; western and southern edges of the districts of Meaux, Coulommiers, Provins; southern edges of the Departments of the Marne and of the Meuse; southern and western edges of the Department of the Vosges; western edge of the territory of Belfort." Immediately upon receipt of this information, November 18, 1919, a cablegram was sent to the commander, United States naval forces operating in European waters, London, England, directing that preparations be made for evacuation of Navy dead from the released area. Upon advice from the force commander, these instructions were later changed to include also all Marine Corps dead



in this area regardless of whether the organization to which had been attached was serving with the Army, as a part of American Expeditionary Forces, or directly with the Navy.

This action of the French Government released the graves of approximately 18,000 dead of the American Expeditionary Forces, including marines, and 400 dead of the Navy. As the far greater number of soldiers and marines were buried in the "zone of armies," however, negotiations were continued, under the agreement of August, 1918, for rescindment of all restrictions. It must be noted here that, due to the firm stand taken by this Government against the proposed French law prohibiting for three years the transfer of remains of military dead from France, was not enacted, but the attitude of the French resulted in the creation of a mistaken, though very unfortunate, impression in this country, as to their underlying motives, one manifestation of which was the formation of socialistic organizations nation wide in scope, for the purpose of expediting return of American dead.

In June, 1920, our endeavors culminated in withdrawal of French objections after September 15, 1920, and similar arrangements were made with Belgium. It was also determined that no American dead should be left in Germany.

As first organized under the force commander, in January, 1920, the Navy exhumation unit for operation in France consisted of medical officers, 1 paymaster, and 45 enlisted men of various ranks, with an equipment of motor trucks, etc. A temporary office was established in Paris, and Brest was designated as a base for operations, two large buildings being turned over to the unit by the French port office for storage of supplies and to receive disinterred bodies awaiting transportation. Six hundred Navy standard shipping caskets were forwarded to the unit from the United States Naval Medical Supply Depot, Brooklyn, N. Y., in February. Two months were consumed in assembling equipment, preparing records, checking the grave markings against the lists of Navy and Marine Corps dead compiled in the bureau, and securing permits from the various communes or departments of France for disinterment and transportation of the bodies to points of embarkation. The initial disinterments were made March 17, 1920, from the Kerfautras Military Cemetery, Brest, and on May 16, 1920, the U. S. S. *Nereus* docked at the fleet supply base, South Brooklyn, N. Y., with 153 disinterred bodies of Navy and Marine Corps dead, the first to be returned to France. Special services in honor of these officers and men were held at the base, and a memorial address was delivered by the Honorable Secretary of the Navy, after which the bodies were transported to the United States Naval Hospital, Brooklyn, N. Y., for reinterment to the various points which had been designated by the force commander. Twenty-five were reinterred with appropriate military honors in the newly established European section of Arlington National Cemetery.

In April, 1920, the force commander closed his headquarters in London and raised his flag on the U. S. S. *Pittsburgh*, necessitating a change in the previous method of handling the operations of the exhumation unit through his office. The United States Navy and Marine Corps Graves Registration Service was therefore organized.

take over the entire charge of all pertinent affairs not only in France, but in other European countries. Lieut. Commander L. W. McGrath, Medical Corps, United States Navy, was placed in command, and the service was put in commission April 28, 1920, with headquarters at Paris, under the direct supervision of the bureau. On this date the Navy exhumation unit was automatically placed out of commission and combined with the Graves Registration Service, thus providing a more comprehensive organization.

This service has formed a close alliance and is working in hearty cooperation with the Army Graves Registration Service, which is engaged in removing soldier dead from the same territory. The work is being conducted carefully and systematically, disinterments having been completed in the following cemeteries: Ile Tudy, Kerfautras, Lambazellec, L'Orient, Marseilles, Nantes, Nice, Quiberon, Relecq-Kerhoun, St. Jean de Monts, St. Nazaire, and Savenay. The second consignment of bodies, 75 in number, arrived at Brooklyn, N. Y., on board the U. S. S. *Hancock* in August, 1920, and it is estimated that all Navy and Marine Corps dead will have been returned from the interior of France by the end of the present calendar year, when the active operations of the Naval and Marine Corps Graves Registration Service will cease, arrangements having been made with the Army Graves Registration Service to care for our dead in the "zone of the armies" in Belgium and Germany. The Navy thereafter will maintain only liaison officers with the Army Graves Registration Service to keep in contact with Army operations and to cooperate in the reinterment of the remaining Navy and Marine Corps dead in the three American National Cemeteries which are to be permanently maintained by this Government at Suresnes, Romagne, and Belleau Wood.

Plans for the design and maintenance of these cemeteries are now being developed by the American War Memorial Council, consisting of representatives of the different services of various patriotic organizations, the Navy and Marine Corps being represented, respectively, by Surgeon General William C. Braisted, United States Navy, and Major General John A. Lejeune, United States Marine Corps.

#### COOPERATION WITH BUREAU OF WAR RISK INSURANCE.

On May 25, 1920, a joint meeting of representatives of the Army Navy, Public Health Service, National Soldiers' Home, and Bureau of War Risk was held in the office of the director of the latter organization.

In order to assist the Bureau of War Risk in furnishing medical and surgical aid to discharged soldiers and sailors entitled to assistance from the War Risk Bureau, the Medical Department of the Navy has designated 16 establishments under its control, where beds are available for the cases referred to, with an aggregate capacity for 3,225 patients.

The only restriction placed on this offer was that depending on sufficient personnel to attend to the patients, and the latter must be strictly in the class requiring active medical or surgical treatment, as it is not intended that naval hospitals shall be utilized merely as homes for needy discharged soldiers or sailors. The beds to the

number listed are not to be considered available save where the commanding officer of a given naval hospital has a staff adequate to discharge the additional duties thus imposed.

While this assistance is most cheerfully tendered, it is not without apprehension of the possibility of vexatious complications, and the presence of discharged soldiers and sailors will create in the naval hospitals two types of patients (an anomalous situation); strictly amenable to military discipline and those who are not.

It has therefore been requested that in sending patients to naval hospitals the Bureau of War Risk caution them to conform to the rules of the institution to which they are assigned. In case of repeated and flagrant disregard of such rules, their removal should be requested, but commanding officers are called upon to exercise great judgment and tact in applying restrictive measures to such patients.

#### **MEDICAL AND SURGICAL SUPPLIES.**

It was very gratifying to be able to report last year and the year before that, while on entering the war we did not have on hand an enormous supply of medical and surgical stores suddenly called for, steps had been taken in advance which soon made it possible to meet every demand. It has never seemed wise to endeavor to have on stock the variety or quantity of articles that might be wanted in unusual situations, for drugs deteriorate and even standard instruments and hospital equipment are being constantly discarded for newer types.

However, by the time hostilities ceased, suddenly and rather unexpectedly, we were in possession of supplies sufficient for an indefinite struggle. Steps were immediately taken to avoid loss and waste of accumulated stores. A very considerable portion was returned to the naval medical supply depots in this country and became available for reissue. In order to save rental of excessive storage space, a great deal of material was stored in the hospitals and at navy yards at the several ports where ships went out of commission for disrepair later as local needs developed. This effected a great saving in expense for transportation.

At Brest, France, Navy Base Hospital No. 1 had been largely devoted to caring for the sick and wounded of Army troops in transit, while our other Brest hospital (Navy Base Hospital No. 5) was mainly for the accommodation of our own people. When demobilization was indicated, Navy Base Hospital No. 1, with its full equipment of drugs, dressings, sterilizers, bedding, linen, and hospital furniture, was turned over intact to the Medical Department of the Army, so that the service required by them was not interrupted for a moment.

The work which has been undertaken by the United States Public Health Service for the relief of discharged soldiers and sailors in hospital treatment was greatly facilitated by our turning over much needed stores to that service, which thus procured them without delay, while the Government was saved the profit on purchases which the Public Health Service would have been compelled to make at the present generally increased prices. The transfers mentioned were made under the provisions of the act of March 3, 1919.

A conservative and economical spirit characterizes all of our experienced medical officers, who, while desiring an abundant



the best for their patients, abhor waste. This spirit is constantly inculcated in the younger members of the corps.

Two naval medical supply depots were maintained abroad during the war, one at Brest, the principal establishment, and another at Liverpool (demobilized May 1, 1919).

*United States Naval Medical Supply Depot, Brest, France.*—This establishment was in commission from April 22, 1918, to September 15, 1919, something over 16 months (522 days). The total value of the stores received was \$161,318.14. The number of requisitions filled was 976, or an average of 1.87 per diem, and the total value of the issues was \$100,000. The area supplied was large, as shown by the following summary:

Air stations in France.....	20
Air stations in Italy.....	2
Hospitals in France.....	2
Hospitals in Italy.....	1
Port offices in France.....	10
Port offices in Italy.....	2
Port offices in Gibraltar.....	1
Port offices in Belgium (Antwerp).....	1

Stores were also issued to ships requisitioning from any port in France, Italy, England, Scotland, and Wales, from Trieste and the Dalmatian coast, and were also shipped to the U. S. S. *Scorpion* at Constantinople. When demobilized, 2,001 cases, crates, and bales of medical supplies and equipment were shipped to the United States. All stores, other than linen and bedding, returned to the United States were available for immediate issue. The latter had been used and, though valuable and calculated to be of service at hospitals, was not suitable for issue to ships.

There were two conspicuously bad features in connection with the medical supply depot at Brest. They are noted so that they may be avoided in future. Very inadequate storage space had been secured there in advance of arrival of stores. The three rooms allotted for the purpose yielded but 600 square feet of floor space. Recommendations that more space be assigned were not acted on favorably and the later shipments were housed in a tented shelter built against an outer wall which afforded 1,000 square feet additional space. Finally a building was constructed out of the packing cases in which aeroplanes had been shipped, furnishing another 1,000 square feet of space. With this provision it was still necessary to pile cases one above another to a height of 10 or 15 feet, rendering quick sorting and distributing of contents difficult. There was but one small room available for checking and packing. As the shelves in the storerooms could accommodate only about a dozen bottles or packages of each article there was great loss of time due to frequent opening and closing of original cases. When demobilization began, a situation which had gradually improved through reduction of stock by filling requisitions recurred as unused stores began to be returned in large shipments. Three big tents were now procured to harbor them and every case was unpacked, checked, and reboxed, a prodigious task. Chief Pharmacist's Mate E. T. Aron was the administrator of the supply depot under the authority of the commanding officer of Navy Base Hospital No. 5 and had as assistants five members of the Hospital Corps until demobilization began when four

additional members of the Hospital Corps were assigned him. work was hard, but it was done faithfully and cheerfully; i. e. done. The other unfortunate feature, unavoidable perhaps the circumstances, was the rough handling and storing in transit the containing cases which were in every instance broken resulting damage to contents or loss by theft. Much credit most hearty thanks are due the Supply Department, Base 7, F for the uniform courtesy and expedition with which all shipments were handled.

With a view to constantly improving in every way the work from the United States naval medical supply depots, the bureau carefully gone over 338 sanitary reports submitted during the year from individual hospitals, stations, and ships and notes comments, favorable or otherwise, in the stores and drugs supplied them. Of these 338 reports, 132 were from destroyers, 87 from of miscellaneous type, 61 from shore stations and hospitals, and from battleships and cruisers. Of the total number, 192, or 56 per cent, of the annual sanitary reports simply stated without comment that medical and surgical stores were sufficient in quantity satisfactory as to quality. In 67 of the reports (19.8 per cent) was no allusion to stores. The remaining 79, or 23.4 per cent, contained suggestions for eliminations, additions, increases, etc. The information thus obtained will be of service to the United States naval medical supply depots in selecting stock, in estimating quantities required, etc. In many instances suggestions were not complaints, but represented merely individual preferences or were on unusual experiences which necessitated heavy drafts on the stock of some particular therapeutic agent that under ordinary circumstances was abundant for all needs. A number of medical officers urged novarsenobenzol or some other arsenical preparation be issued instead of arsphenamine.

#### FINANCIAL STATEMENT.

The appropriations made by the Congress during the World War for the support of the Medical Department of the Navy were large and unstinted, and as mentioned in my preceding report the committees on Naval Affairs and Appropriations of the House of Representatives frequently assured the bureau's representatives at hearings before them that needed funds for the care of the sick and wounded of the Navy and Marine Corps would always be forthcoming should the necessities of the service be made clear to them.

It is not to be expected that this attitude of extreme liberality will continue after two years since the signing of the armistice.

The estimates for the appropriations for the current fiscal year (1921) were written in September, 1919, 10 months before the beginning of the year, and when the strength of the Navy and Marine Corps and the activities of the naval forces had neither been determined by Congress nor planned by the department. The needs of the service under such conditions could not be fully anticipated and the needs of the general maintenance appropriations were underestimated. These conditions have always prevailed, and will continue until such time when a naval policy shall be adopted by Congress and held year after year without material change, especially as to the established strength of the personnel, enlisted and commissioned, of the Navy and Marine Corps.

The following table illustrates the vicissitudes of obtaining appropriations:

*Comparative statement of appropriations for 1920 and 1921, and of estimates for 1921.*

Title.	Appropriated, 1920.	Estimates for 1921.		Appropriated, 1921.
		By bureau.	By department.	
Medical Department.....	\$7,500,000	\$4,000,000	\$2,500,000	\$2,500,000
Contingent.....	1,000,000	750,000	500,000	500,000
Bringing home remains.....	700,000	300,000	300,000	300,000
Care of hospital patients.....	1,000,000	500,000	250,000	100,000
Total.....	10,200,000	5,550,000	3,550,000	3,400,000

The first and last column, when compared, show the great reduction made in the funds for carrying on the work of the Medical Department during the current year. The appropriation "Medical Department" was reduced between last year and this to one-third its amount; "Contingent" to one-half; "Bringing home remains" to four-sevenths; and "Care of hospital patients" to one-tenth; these reductions, notwithstanding the continuing high price of labor and of all supplies, make necessary the most drastic economy.

During the World War the naval personnel, including the Marine Corps, reached a total of over 600,000; on August 2, 1920, the "weekly census" showed a total of only 139,000.

It is realized by all that naval hospitals must be maintained in a state of efficiency to meet the exigencies of the service, and that with the movements of the fleet the numbers of patients increase or decrease in particular naval hospitals, for which reasons certain overhead expenses can not be so greatly reduced as might be desired. The purpose for which naval hospitals are maintained is the care of the sick and injured; the activity of the hospital is therefore measured by the number of patients carried.

The time has come for retrenchment, and all commanding officers have been directed to take careful survey of conditions, and to make such radical reductions in their forces of civil employees, and other expenses, as may be possible.

It is the bureau's intention during the next several years to limit public works to the preservation of existing buildings, except where special appropriations may be secured from the Congress. The temporary and semipermanent buildings erected during the World War will be kept in fair condition until such time as expensive repairs become necessary, when they will be demolished, as the cost of upkeep of buildings of this character will be prohibitive after a few more years.

#### INSPECTIONS OF HOSPITALS AND STATIONS.

The inspection of hospitals referred to on page 123 of my annual report, for the fiscal year 1919, has been conducted throughout this fiscal year by the bureau's inspecting officers, on both the Atlantic and Pacific coasts, and has been attended with very gratifying results.

The prescribed form for use of inspecting officers has been revised and improved, and, in addition, questionnaire forms for use in con-

nection with the inspection of dispensaries and Hospital training schools have been prepared and used very advantageously.

The great value of these inspections has been demonstrated conclusively; their continuation, as a permanent policy, is considered very essential.

By this means the bureau may keep in closer touch with its widely scattered institutions, and is able to quickly detect and correct irregularities that might otherwise continue over long periods.

The standardization of forms and methods in our various hospitals is an important issue, and can best be accomplished through efficient inspectors.

During the first year following the inauguration of the office of inspector of hospitals, practically all the hospitals and Medical Department activities were inspected once, and some repeated. The time of the inspecting officers during this fiscal year has been devoted largely to studying results of previous inspections, arranging the records, and following up former recommendations and proposals. There has, however, been considerable—and some very important—inspecting done this year. On the Atlantic coast, inspections have been made in 11 of our largest hospitals, one large medical supply depot, three Hospital Corps training schools, a great number of dispensaries, laboratories, and other Medical Department activities, and, in addition to these, the Fort Lyon hospital for tubercular patients. Three of the above hospitals were inspected twice. On the Pacific coast the hospitals were regularly inspected, and a joint inspection, by both the bureau's inspectors, was made of Mare Island Hospital and all Medical Department activities in the vicinity of San Francisco, Calif.; the latter having had, as one of its objectives, the acquainting of each of the officers with the method and manner of procedure of the other, in order that the inspection in the two fields may be as near uniform as possible.

The personnel in the office of inspector remains the same all year, viz, Rear Admiral A. M. D. McCormick, Medical Corps, United States Navy, on the Pacific coast, Honolulu, and Asiatic station; Rear Admiral Robert M. Kennedy, Medical Corps, United States Navy, east of the Mississippi River, and Fort Lyon, Colo. There has been one change in the detail of inspector's assistant, due to the death of one of the assistants, Lieutenant. Edward R. M. Medical Corps, United States Navy, at Mare Island, Calif., February 1, 1920. Lieutenant Paul V. Tuttle, Medical Corps, United States Navy, is the assistant on the Pacific coast, and Lieutenant Joseph Gill, Medical Corps, United States Navy, on the Atlantic coast.

#### SPECIAL RESEARCH.

Besides the invaluable work steadily and increasingly carried on in the laboratories of the United States Naval Medical School, Washington, D. C., under the direction of Rear Admiral E. R. Stitt, Medical Corps, United States Navy, to whom technical problems of etiology and pathology arising in the Navy are constantly referred, much research of a highly important nature has been actively prosecuted throughout the service. Lieut. Commanders W. L. Mann, G. F. C. and J. B. Helm and Lieutenant C. J. Brown, Medical Corps, United States Navy, are engaged in the study of a peculiar and serious

case found among the natives of Haiti and not hitherto described. From preliminary reports it would appear that the disease in question arises in connection with improper diet. At Annapolis, Lieut. S. B. Solhaug, Medical Corps, United States Navy, conducted a series of anthropometric examinations to acquire data regarding necessary physical exercise for officers. At the United States Naval Medical Supply Depot, Brooklyn, N. Y., very minute investigations have been carried on under the inspiration of Captain E. S. Bogert, Medical Corps, United States Navy, in regard to arsenical preparations for intravenous use. At New London, Conn., the ration most appropriate for the crews of submarines has been studied and recommendations made. At the Portsmouth naval prison and at the various training stations the question of responsibility, competency for military life, disposition to crime in the nervously unstable or diseased continues to be a matter of absorbing interest.

#### INSTRUCTION AT THE UNITED STATES NAVAL MEDICAL SCHOOL, WASHINGTON, D. C.

Because of the rapid progress made in the several branches of medicine and surgery in recent years, specialization has become a necessary development. While the naval medical officer, far more than the general practitioner in civil life, should have a sound knowledge and be able to do good work along many different lines, he can seldom become expert except in a more limited field. For these reasons it has seemed advisable to encourage a certain amount of specialization along rather broad lines in the Naval Medical Corps.

With the above object in view the courses at the United States Naval Medical School during the last year have differed somewhat from those previously given. The sessions have been of 10 weeks' duration and, during the last 6 weeks of each, the members of the class were divided into three sections. Each section received special instruction on two mornings in each of the six weeks in the branch for which he was considered best fitted by preference and experience. Each class has attended two lectures a week on naval hygiene and sanitation, on tropical and preventive medicine, on Medical Department duties, on surgery and on ophthalmology and otology throughout the course. Practical work and instruction in surgery, ophthalmology, roentgenology, pathology, medical zoology, bacteriology, chemistry (including blood chemistry), serology, and naval hygiene have been provided in as thorough and systematic a manner as time would permit. Each Friday has been spent at St. Elizabeths Hospital, where the vast amount of clinical material in that institution has been utilized to provide practical work in pathology, clinical neurology, and clinical psychiatry.

The advantages of such instruction to all the members of each class are obvious and in addition opportunity has been afforded to develop the special abilities of a few in each section.

Special courses were given under the headings of general surgery, internal medicine, and ophthalmology, though each covered a broader field than those titles would indicate. There has been a total of about 360 hours of instruction and practical work, in each course of which only 39 hours were devoted to this broad specialization. This

limited time has been used to more accurately determine the reliability and experience of each member of the section, as well as to train him more fully in his particular field. The members of the section who were apparently best qualified for further instruction were, at the close of the 10 weeks, recommended for a course of 6 months of clinical work at certain medical centers.

The surgical instruction has been continued at the Mayo Clinic, Rochester, Minn., with most gratifying cooperation on the part of the instructors at that place.

The instruction in internal medicine has been continued at the Phipps Institute and Pepper Laboratory, University of Pennsylvania, where the close coordination of laboratory and ward work and the excellent clinical material at the university hospital have been utilized under the supervision of Dr. Alfred J. Stengle.

The instruction in ophthalmology and otology, after the first course was carried out at the School of Ophthalmology and Otology of the New York Eye and Ear Infirmary and, after our two later courses at Washington University, St. Louis, Mo., where the instruction is particularly well systematized.

The first of these courses at the United States Naval Medical School commenced on September 29 and ended December 20, 1919. There were 23 officers in this class, and 9 were recommended for further instruction. The second course commenced on February 4, 1920, and ended on April 24 of the present year. There were 23 officers in this class, and 11 were recommended for further instruction. The third course commenced on May 14 and ended on July 24, 1920. There were 14 officers in this class, and 8 were recommended for further instruction.

Each officer permitted to continue instruction along special lines at one of the above mentioned places has agreed to remain in United States naval service for at least three years after the completion of such instruction. This period should perhaps be increased to five years.

The development of officers better qualified to serve as heads of hospitals in our naval hospitals is thus being advanced, though officers will be expected to take their turns at sea duty and such other duties as service conditions may require.

It is believed that each member of the Medical Corps of the United States Navy, appointed in recent years who has not enjoyed the privilege of a course at the United States Naval Medical School, should receive such a course as soon as service conditions will permit. It has therefore been recommended that three courses of about 12 weeks each be given every year along the lines above outlined, and that the next course is expected to start about September 22, 1920.

We are fortunate in having at the head of the United States Naval Medical School, particularly in view of the new departures outlined above, a medical officer of unusual qualifications for the position. Rear Admiral E. R. Stitt, Medical Corps, United States Navy, enjoys the highest possible professional reputation both in military service and in civil life, has had years of experience as a teacher and is in close touch with the leaders of medical thought and practice throughout the country.



**NAVAL DISPENSARY, WASHINGTON, D. C.**

There has been a decrease in the demands made upon the Naval Dispensary as compared with 1918, but the appended figures show that the total volume of work accomplished was considerable. The transfer of the yeomen (female) to inactive status, August, 1919, reduced very largely the requests for professional care. After the date given there were no more patients of this class sent to the Georgetown Hospital. First-aid treatment is given to all persons requiring it employed at the Navy Department and, as a matter of accommodation, to those in the adjoining Munitions Building as well, since the main Army dispensary is a couple of miles distant.

In the eye, ear, nose, and throat department the calls for attendance have not appreciably diminished since last year. About 250 operations have been done in the civilian hospitals of the city, as no operative work is undertaken at the dispensary proper. It is not easy to draw the line so as to limit service to "families and dependent relatives" of officers and men "of the active list on duty" and the liberal policy has been followed of not attempting to make any discrimination, but of course criticism has not thereby been avoided.

All branches of work are undertaken in the dental department and patients do not have to be referred to civilian dentists for extractions, diagnosis, or treatment. The laboratory installed in 1919 to make artificial restorations for men injured in the line of duty abroad has been fully occupied. So far, 160 such cases have been cared for at great saving of expense to the Government. The total of all treatments given in the dental department is 7,175.

The member of the staff charged with the obstetric and gynecological service reports 37 deliveries attended, 19 gynecological operations, 1,240 office calls, and 1,201 house calls.

The dispensary cases of a surgical character referred to Commander H. F. Strine, Medical Corps, United States Navy, and treated by him were 157, of which 29 were fractures and the balance cases requiring operation. The operations included appendectomy, herniotomy, amputation of breast, excision of malignant tumors, gastroenterostomy, excision of coccyx, arthroplasty of the knee, etc.

*Summary.*

Patients treated.....	32, 659
Outside calls paid by medical officers.....	10, 997
Patients transferred to naval hospital.....	343
Patients invalided from service.....	15
Ambulance calls.....	300
Requisitions prepared.....	70
Public bills prepared.....	150
Prescriptions filled.....	40, 935
Officers examined (annual).....	603
Candidates for Naval Academy examined.....	169
Patients treated in eye, ear, nose, and throat clinic.....	16, 670
Patients treated in dental section.....	10, 130
Total patients treated.....	59, 459

**WELFARE ACTIVITIES.**

Efforts have been made during the past year definitely to determine the most efficient methods of establishing welfare activities in hospitals on a sound basis. During the war a tremendous amount of

work was undertaken by various organizations for the sick and injured in hospitals, as well as for the able-bodied of the Navy. How best to perpetuate the most desirable features of this work has required a great deal of thought. It was recognized that governmental provision should eventually be attained, but in order to suddenly terminate all the good that had been done in the way of entertainment and recreation, it was seen that there must be a gradual process of reorganization and elimination. It was necessary to permit the continuance by outside agencies of the work they were undertaking until such time as this work could be carried out, wholly or in part, by the Navy. According to law, it is only through the American Red Cross that hospitals can accept gifts from outside sources. With this in mind and the desire upon the part of the American Red Cross to continue its association with the Navy for the benefit of the sick, injured, and convalescent, efforts were directed toward utilizing our own resources, supplemented by certain services which the Red Cross was anxious and able to render.

Patients offer a fertile soil for good and evil influences. The physician and nurse must consider the contentment and amusement of the patient as factors in reestablishing his health. Treatment, to be successful, must embrace rehabilitation of mind as well as of body.

Commanding officers of hospitals have always endeavored to provide entertainment for those under their command with whatever facilities were to be found in their particular surroundings, accepting charitable services from civilians manifesting local pride in naval institutions and using what funds could be procured from the various enlisted men's clubs, and the like. The character and amount of entertainment varied at different institutions, depending upon the interest manifested by the commanding officer and the facilities and funds available.

With the establishment of the Sixth Division of the Bureau of Navigation, and the taking over of the activities conducted by various welfare organizations during the war, for the purpose of continuing under its own administration the splendid welfare services originally and carried on by them, means were sought to ascertain the most efficient method of applying this welfare service to our hospitals.

In order that close cooperation might be maintained between the Sixth Division of the Bureau of Navigation and the Bureau of Medicine and Surgery, an officer was detailed from my office as liaison officer for welfare work. My representative at national headquarters, American Red Cross, who is director, bureau of naval affairs at said headquarters, was the logical person to assign to this work because of his association with the Red Cross and because of his familiarity with our naval stations gained by visiting each one and securing first-hand information as to the needs of the hospitals.

With the welfare work for our medical establishments coordinated in the bureau, it is my purpose to have the commanding officer of each hospital assign one of his staff to additional duty as welfare officer. At some of the larger hospitals, this has been in force for some time. Such an assignment of medical officers will stimulate greater interest in welfare activities among officers and enlisted personnel, will properly coordinate the work locally under the direction of the commanding officer, and be a means of training officers in principles of leadership. The younger officers are likely to



selected for this particular assignment, and it is well that medical officers coming into the service should early be impressed with the importance of attention to other than the purely professional side of their naval position. Too much emphasis can not be placed upon the importance of the qualities making for leadership in the Medical Corps, as well as in other branches of the service. A naval medical officer must be a very broad, many-sided individual, alive to every phase of his environment.

Our larger hospitals have a ship's store of sufficient size to net them adequate funds to provide entertainment, athletic, and recreational features. The smaller hospitals, where there is no ship's store and, therefore, no ship store profits, are dependent upon outside provision for all of their athletic, entertainment, and recreational features. Whether funds are available locally or not, each hospital is provided for, so that patients and duty personnel are taken care of in these particulars.

The facilities offered by the Sixth Division of the Bureau of Navigation are taken advantage of, and through its assistance our hospital facilities for the amusement and entertainment of the personnel have been extended at the larger as well as the smaller institutions. That portion of the ship's store profits heretofore set aside for the amusement and contentment of the enlisted personnel of hospitals, instead of continuing to be administered by this bureau, was turned over to the Sixth Division, thus centralizing, so far as this bureau is concerned, the welfare disbursements, this bureau merely retaining the privilege of approval or disapproval of requests submitted from establishments coming under its cognizance.

The only welfare specialists that have been employed by the Sixth Division for our hospitals have been the few librarians taken over from the American Library Association. These women have done splendid work. The character of their services has been the subject of many expressions of appreciation by commanding officers at the hospitals to which they have been assigned. Because of the apparent need for their continuance, five library specialists have been retained at an equal number of the larger hospitals, for at least another year, when it would appear that some other provision will have to be made to replace these workers, and at the same time successfully continue this valuable specialized form of service. The library service has been brought up to a very high plane during the war, and our hospital libraries are now very complete. There are as many as 4,000 books in some of our hospital libraries. The number of books read at the hospitals, per capita, is several times greater than in public libraries and two and one-half times greater than in other naval libraries. In our naval hospitals, the number averages from two to four per month per capita.

A limited amount of so-called "occupational therapy," which seems really deserving of the more appropriate designation "occupational recreation," has been conducted at three of our largest hospitals and with very gratifying and beneficial results to hospitals and patients. Both bed and up-and-about patients enjoy this form of diversion. The long hours in bed are less irksome when the patient has something to occupy his mind, particularly when he can measure his accomplishments. This recreational feature has been conducted by the Red Cross under the direction of the commanding officer.

Materials are bought by the Red Cross for the articles that are made, the individual patient paying for the materials at actual cost, and when made the article is disposed of by him, either as a gift or through sale. The purpose is to stimulate interest, initiative, and activity in the patient's mind, to assist in restoring physical function and to amuse him. Nothing is more detrimental to the health of the most classes of patients, than to lie in bed with only their painful thoughts and reflections to occupy their minds. When such a condition is permitted, neurasthenia complicates the initial condition and frequently persists long after the original ailment has been cured. The hospitals which have applied "occupational therapy" or "occupational recreation" are very enthusiastic over the results attained. Of course, patients in bed are limited in what they can accomplish, but as soon as they are in a wheel chair or walking about they have access to a room or shop set aside as a work shop for this purpose. Among various articles made are baskets, mats, pillow covers, shawls, belts, and bedding; they also do picture framing, wood carving, etc., the patient being able to select the object he desires to make among those for which materials are provided. It has been felt that this is one of the means of reducing the number of sick days at the particular hospitals where it has been applied.

During the war, the Red Cross built and furnished convalescent houses at a number of our hospitals. Where no convalescent houses were built, recreation centers, which were wards or spaces in the main building, were attractively furnished by the Red Cross. These houses and centers have met a great need, and are used in the place of clubs for enlisted personnel, all indoor recreational facilities coming in them. The library, reading and writing spaces, are arranged so that those enjoying these forms of diversion are not annoyed by noise incident to a full enjoyment of games. Certain nights each week, moving pictures, plays, recitals, and various other forms of entertainment are held. Attempts are always made to provide music, which adds a great deal to the enjoyment of the occasions.

Special mention should be made of the hospital at Fort Leavenworth where more elaborate facilities have been provided on account of its remote location and the class of patients treated. It has been the purpose to make the environment as attractive as possible, so that the retention of the patient will be more easily accomplished for the long periods necessary to produce lasting good results among patients infected with tuberculosis. The Sixth Division has made general allotments for the entertainment and recreational facilities of the hospital. At present, in inclement weather, all indoor recreational activities, other than those for the benefit of bed patients in wards, are conducted in the Red Cross convalescent house, and more adequate facilities will be available when the auditorium, chapel, and gymnasium, which have been authorized, are completed.

Hospital ships have also been considered. Athletic, recreational, and entertainment material is furnished them upon request, according to the size of the ship and the complement. The new hospital ship is being fitted up with this type of supplies for patients and enlisted personnel.

With American Red Cross activities supplementing government provision, the American people can actively participate in war

work for members of their naval forces when sickness or injury overtakes them in their services to the country.

#### AMERICAN RED CROSS.

With the termination of the war emergency, it seemed, at first, that a continuation of any of the activities conducted by the American Red Cross for the Navy would be unnecessary or undesirable, but the contrary was found to be the case. After a very comprehensive study was made by a representative of my office, the national headquarters of the American Red Cross requested me to permit Lieut. Commander J. T. Boone, Medical Corps, United States Navy, director, bureau of naval affairs, national headquarters, to visit every naval station of any considerable size, in the United States, for the purpose of observing Red Cross work as conducted for the Navy, to get in personal touch with Red Cross division forces charged with directing the military and naval Red Cross activities within their respective divisions, and to familiarize himself with the Red Cross personnel actually carrying on these activities locally. All stations on the Atlantic coast were visited from Portsmouth, N. H., to Key West, Fla.; those on the Gulf of Mexico; the four larger stations on the Pacific coast, and at Great Lakes, and the naval hospital at Fort Lyon, Colo. At the same time, 10 of the 13 Red Cross division headquarters were visited.

As a result of this study and investigation, I requested, as the representative of the Navy Department on the executive committee, that the Red Cross continue in peace certain activities conducted by it during the war for the benefit of the naval service, in view of its charter, which states that it is "to act in matters of voluntary relief, and in accord with the military and naval authorities, as a medium of communication between the people of the United States of America and their Army and Navy" and "to continue to carry on a system of national and international relief in times of peace," etc.

It was felt that with the exception of that helpful aid rendered to the enlisted personnel of the Navy in conformance with the wishes of commanding officers, and that aid rendered to the families of its vast personnel, which had been designated and known during the war as home service, Red Cross activities should be confined for the most part to the sick, injured, and convalescent. The American Red Cross desires to have contact with all personnel in the Navy, for it believes it can best serve both the military and civilian by linking up one with the other. The personal touch of the home with those in the various governmental services should react most beneficially upon morale and so be an aid in promoting the efficiency of these services. Home service embraces assistance in untangling personal difficulties and establishes a connecting link between the service man and his home folks, so that the man need never worry about his family and the family may secure immediately any needed relief and be kept in touch with their man in the service. These efforts have unquestionably been beneficial to the service, as attested by commanding officers of naval vessels, stations, and hospitals. It is not desirable, nor can it be expected that a man, because he has joined the Navy, should sever his home connections or forget his home responsibilities; in fact, it would seem best to have every helpful influence back of him during

his service to make sure that unnecessary worries about the ones at home will not interfere with his efficiency or morale. Red Cross is prepared to accomplish this purpose through its national and divisional headquarters, its chapters, and its thousands of local service sections throughout the United States. Through these channels, the man in the service is kept linked to his home, and investigations are conducted for the naval authorities, of inestimable value to them and to the men. Whenever this home service has been of advantage to the commanding officers, its value as an important adjunct to the facilities at the Navy's command seemed unquestioned. This service is rendered in close association with the activities of the Sixth Division of the Bureau of Navigation, which recognizes the helpfulness of the Red Cross in building and maintaining morale as a medium of communication with the relatives and homes of the men, and is coordinated by the director, bureau of naval operations, national headquarters, who, in accordance with a provision of law, is detailed there from the Medical Corps of the Navy.

In addition to home service for the benefit of the entire naval force, the Red Cross acts as a supplemental agency in providing recreation, amusement, and recreational features at our hospitals, distributing minor supplies for the comfort and welfare of patients, and furnishing hospital supplies when required in an emergency, just as was done during the influenza epidemic in 1918.

To conduct their activities locally, Red Cross representatives known as field directors, are stationed at the larger naval stations and hospitals. Field directors are now with the marine forces at Santo Domingo and Haiti, and while the Atlantic Fleet was in the Caribbean waters for winter maneuvers a field director was stationed at Guantanamo. Every effort is made to maintain, so far as is possible, a continuity of this special service rendered by the Red Cross.

For some time I have been keeping before the national channels of the executive committee, American Red Cross, the great need in the West Indies and the broad fields for relief work among the island population. This relief work has seemed to me to be of such a nature as to appeal to the American Red Cross, and it impressed me in view of our relations with these islands, that the American Red Cross was the logical organization to render this humanitarian service. With less attention being directed to Europe, it became possible to take definite action to be taken last autumn, when a commissioner was appointed and sent to make a first-hand survey of the situation at Santo Domingo, Virgin Islands, and Haiti, with special attention centered on Santo Domingo. The commissioner selected was John A. Swan, late lieutenant colonel, Medical Corps, United States Army, who had command of a large base hospital in France, and is present president of the American Society of Tropical Medicine. He is eminently fitted for such an assignment because of his broad experience in institutional work and his high standing in the medical profession of this country. After about six months' study he has made a very comprehensive report, upon the basis of which certain relief work has been instituted. The Red Cross had been actively assisting our naval administration in the Virgin Islands and Santo Domingo even prior to this survey, but without the degrees of definiteness that has followed the recommendations of Dr. Swan.

In Haiti, due to the form of government, the assistance rendered has been naturally more limited, but there have been appropriations for specific projects, which should react beneficially both to the native population and the occupation.

In the Dominican Republic the American Red Cross has been actively engaged in health work, stimulating interest in health needs, and establishing an American Red Cross hospital at Seybo for the civilians in that bandit section of the island. This hospital has been run by our naval medical officers in addition to their marine duties, and it has been declared by the military governor that this institution has accomplished an inestimable amount of service beneficial to the occupation, as well as to the natives. It has been a very considerable factor in quieting this particular locality and in gaining the confidence of the inhabitants. A large maternity service has been established and an attempt made to train native nurses in the care of the sick, particular attention being given to midwifery and the care of infants. A civilian doctor has been secured by the American Red Cross, who sails shortly to take over the administration of this hospital. An American Red Cross nurse has already been sent to the Seybo Hospital and is now working in that institution. The naval medical officers will continue to assist whenever it is possible, consistent with their military duties, as they are doing throughout the island of Haiti, as a humanitarian service to these backward countries. With the \$15,000 appropriated by national headquarters, American Red Cross, the Seybo Hospital will be maintained for another year. Additional equipment will be provided for the Hospital Militar at Santo Domingo City. Salaries will be paid to a superintendent and an assistant superintendent for the native nurses' training school at Santo Domingo City, and in addition there will be a certain sum of money invested in salvarsan for the demonstration of treatment by this particular drug under the direction of the Red Cross physician at the Seybo Hospital.

During the great influenza epidemic in the island \$25,000 was appropriated for relief work among the natives. In addition the local American Red Cross chapter spent a considerable amount from its own funds. The American Red Cross has from time to time supplied comfort kits to the marines stationed in the Republic, and since January of this year it has maintained a field director of camp service to carry on this particular form of service, of which mention has been made under the present Red Cross program as now in force with the Navy, of which home service is the principal factor.

The sum of \$45,374.15 has been expended by the American Red Cross on civil hospitals and kindred needs at St. Thomas and Frederiksted, Virgin Islands. This contribution has made it possible to provide more adequate hospital facilities for the poor of the islands. Up to date \$1,300 of this sum have been expended for educational features in schools, and plans have already been approved for library and school nursing activities, which will consume the balance of this appropriation.

An intensive survey has been completed in the Virgin Islands by sending there a representative of the fourteenth division (foreign and insular division), American Red Cross. It is the intention that this representative shall keep in intimate touch with the population there, and the fourteenth division hopes, through the medium of this



representative, to render supplementary assistance in meeting various Red Cross problems as they arise. In addition to the \$10,000 has been appropriated for Junior Red Cross work. Junior Red Cross, Potomac Division, American Red Cross adopted, as it were, the children of the Virgin Islands.

The visit of Col. Swan to Haiti resulted in an appropriation of \$10,000 to be specifically devoted to encouraging the training of native nurses in that Republic. This money may be expended in the construction of a home for native nurses who are training in the United States, or it may be used in any other way that appears to be the most beneficial way at this time of assisting the project. The Red Cross has recruited nursing personnel for the hospital and training school conducted by the Haitian Government under the direct supervision of the sanitary engineer, who is also a medical officer, and in sending these nurses to Haiti it has defrayed some of the incidental expenses. The Red Cross has supplied comfort kits to the marines stationed in Haiti and in general has maintained this station a permanent camp-service post for the primary object of conducting home service for the marines doing duty there.

#### **DIVISION OF PHYSICAL REQUIREMENTS AND MEDICAL RECORDS**

The work of this office as a whole has not diminished appreciably during the past year. While it has diminished some along certain lines, it has increased along others. There has been approximately a 40 per cent reduction in the clerical force of the office, but the clerks have become more proficient they appear to handle their work with as much ease as the larger number formerly did.

*Section on policy and commissioned personnel.*—The miscellaneous correspondence has apparently increased somewhat. In addition to other duties, the chief of the office and one of his assistants have been appointed as a board to examine the records of officers of the Naval Reserve Force to determine whether or not they are qualified for confirmation in the Reserve Force. This requires considerable work and time in looking up the records to obtain the requisite data and in writing to obtain necessary data when it is not on file. At the present approximately 20,000 records have been examined and the necessary papers made out for confirmation or rejection. There are approximately 5,000 more to be examined before the work is completed. It is probable that this work will be accomplished in a few months.

The cases of officers wishing to join the Navy Mutual Aid Association are referred to this office to determine whether or not their health records indicate that they are physically qualified for acceptance. This consumes considerable time in looking up and examining the records.

All bills of civilian physicians and civil hospitals for medical, surgical, and dental services rendered officers and men of the service while on detached duty, leave, or liberty are referred to this office to determine the status of the cases and whether or not the disbursements and injuries for which the services were rendered were incurred in the line of duty and the services authorized by proper authority, and whether or not the services of a medical or a dental officer of a naval hospital were available, in order that it may be determined if the bills should be paid by the Government. The necessary

information generally has to be obtained by correspondence with the patient's commanding officer, and this with the searching of the records consumes considerable time.

The question of the eligibility of officers of the temporary service and the Naval Reserve Force for retirement was undecided and proved a matter of some difficulty for this office until the naval appropriation act (H. R. 11308) of the fiscal year 1921 was passed. Under this act, temporary officers and officers of the Naval Reserve Force disabled in the line of duty, are eligible for retirement in the same manner as officers of the Navy. The effect of this act has been that quite a large number of temporary and reserve officers have been surveyed and recommended to be ordered before retiring boards. It is necessary to use great care in adjudicating these cases in order to determine whether or not they are eligible for retirement so that the interests of the Government may be guarded and no injustice be done the officers. Circular letters have been sent to all naval hospitals requesting that great care be used by boards of medical survey, and that particular attention be given to the question of the origin and whether or not the disease or injury existed or a predisposition thereto existed prior to appointment, and the degree of such disability and to what extent it incapacitates for civil occupation.

There remain very few insane under the care of the Navy as, by arrangement with the Bureau of War Risk Insurance, all such cases are surveyed and discharged into the custody of that bureau as soon as it is determined that they will be of no further use to the service. This relieves the Navy of considerable care and responsibility and enables it to enlist good men in the place of those who are of no further use to the service.

*Section on physical requirements of enlisted personnel.*—One assistant has charge of this section which includes the consideration of:

1. Reports of rejection for enlistment and correspondence relative to physical requirements and waivers of physical defects.
2. Physical requirements of the Nurse Corps.
3. Medical surveys of the enlisted personnel.
4. Data as to disability for the Federal Board for Vocational Education in adjudicating claims for vocational training.
5. Reports of death.

At the beginning of the fiscal year, rejection reports for enlistment in the Marine Corps and Navy averaged about 15 per day. In November, 1919, it was found advisable to raise the physical requirements of minors to the adult standard of physical proportions for enlistment in the Navy as many of the minors then being enlisted were found too immature to perform their full duties aboard ship. This caused a slight increase in the requests for waiver of underweight.

In accordance with the desire of United States Marine Corps headquarters, a very liberal policy in regard to waiving underweight and minor physical defects was adopted for that branch and the majority of requests for waiver submitted by recruiting district headquarters and by recruit depots has been approved. Next to underweight, this division is most frequently requested to waive flat feet or depressed arches and varicocele. It has been observed that it is not good policy to accept for enlistment an applicant with flat feet, particu-

larly when the applicant is under 20 years of age, or to acceptants with large varicocele. During May and June, 1920, the division has acted on an average of 40 reports of rejection and ten requests for waiver per day. In the case of applicants for enlistment, their health records and any other data on file are given careful consideration before action is taken. The division answers correspondence relative to the physical requirements for enlistment and from applicants for enlistment who have physical disability.

Reports of physical examinations for the Navy Nurse are submitted for review and recommendation as to whether the applicant should be accepted or rejected. As many of the examinations are made by civilian physicians, due allowance must be made for variations of opinion as to the importance of certain physical qualifications and the adaptability of applicants for the service.

This section acts on reports of medical survey for enlistment personnel. They have decreased from about 80 per day to an average of 20 per day for June, 1920. The work of determining the age rating of physical disabilities existing in the officer and enlisted personnel of the Navy and Marine Corps for the Vocational Rating Board continues. At the beginning of the year an average of 200 cases daily were acted upon, but except for a few special cases the work has been brought up to date and now consists in giving a rating on current reports of medical survey. A rating of 100 per cent or over is given to cases entitled to compensation and a rating of under 10 per cent to the doubtful cases and not so entitled. This is determined by mature consideration of the body of the report of medical survey and all other available information, such as health records, reports of special boards, etc.

*Section on medical records.*—The large surplus of medical records accumulated by reason of the rapid demobilization of personnel has been checked, indexed, and filed.

The new automatic index system has proved to be more efficient than the old alphabetical file, and approximately 60 per cent of the medical history jackets have been filed under this system.

The files have been almost entirely cleared of medical histories pertaining to Army personnel who came under the supervision of the medical officers.

There are approximately 700,000 jackets in the files at present and they are increasing at the rate of about 400 each day.

*Medical histories.*—Reports of medical history for war-risk personnel constitute the major portion of the work in the division, averaging about 75 reports each day. There appears to be no prospect of any great diminution of calls in the near future, as requests for additional information, due to the change of claimants' addresses, continue to be received. Requests for information from the Bureau are almost negligible in number.

The furnishing of medical histories for the use of selection, promotion, and retirement boards continues to be a large factitious clerical work of this section.

*Casualties and deaths.*—The large number of reports received of casualties sustained has been indexed and filed, but this work has not yet been completed. It will be necessary to recheck



casualty report for verification, as it has been noted in several instances that original information received was not entirely accurate, and in some cases several reports have been made for the same casualty, due to slight errors in the spelling of names. Current death reports continue to be checked, indexed, and filed, and are complete in so far as can be determined from the information received.

#### **DIVISION OF PREVENTIVE MEDICINE.**

The activities of this division during the year may be summarized briefly as follows:

1. Collection and compilation of morbidity and mortality statistics for current use in following the incidence and prevalence of disease in the Navy from week to week.

2. Epidemiological studies and supervision of the prevention and control of communicable diseases.

3. Study of sanitary conditions and recommendations regarding improvement where necessary, with special reference to housing, toilet and bathing facilities, drainage, purity of the water supply, disposal of sewage, disposal of refuse, extermination of insects and vermin, food and conditions under which food is received, prepared, and served, ventilation and ship hygiene, industrial hygiene, personal hygiene, and clothing.

4. Study of health conditions in civilian communities constituting the environment of naval stations and ports visited by naval vessels; recommendations in matters requiring cooperation with Federal, State, and local health officials.

5. Dissemination of information relating to preventive medicine for the use of medical officers of the Navy.

The bureau has been kept informed of sanitary conditions throughout the service by means of sanitary reports from ships and monthly and special sanitary reports from naval stations. All reports containing information relative to unsatisfactory health conditions, or recommendations looking toward improved sanitation have been acted upon by the bureau or referred with appropriate recommendations to the particular bureau having cognizance of the matter and the power and funds to act.

Throughout the year information has been disseminated on subjects relating to hygiene and sanitation by means of the monthly preventive medicine bulletin. Abstracts from reports submitted by medical officers in the field, showing their activities and the results obtained, have been published, as well as original articles directed toward the timely application of preventive measures in cases of threatened outbreaks of disease. The endeavor has been made constantly to stimulate interest in the preventive side of medicine and to promote the interests of public health education.

Housing problems have not been acute at any time during the year owing to the small size of the Navy as compared with the personnel strength during the war. The Bureau of Yards and Docks is completing plans for the new permanent training station at San Diego, Calif., and is adhering to housing standards and sanitary provisions recommended by the Bureau of Medicine and Surgery. A board consisting of the commander of the United States Naval Training Station, Hampton Roads, Va., and the commandant of the

United States Naval Training Station, Newport, R. I., appointed the Chief of the Bureau of Navigation to consider the plans and designs of the new station at San Diego, expressed approval of the arrangements and facilities for health protection as recommended by the Bureau of Medicine and Surgery, including modern provisions for incoming and outgoing detention.

Control of mosquito breeding for the prevention of malaria continues to be a sanitary problem of magnitude at several stations among which may be mentioned the United States Naval Operating Base, Hampton Roads, Va., United States Navy Yard, Charleston, S. C., United States Naval Air Station, Key West, Fla., United States Naval Air Station, Pensacola, Fla., United States Naval Training Station, Gulfport, Miss., United States Naval Station, New Orleans, La., United States Marine Barracks, Quantico, Va., United States Marine Barracks, Parris Island, S. C., United States Naval Station, Guantanamo Bay, Cuba, and the United States Submarine Base and Air Station, Coco Solo, Canal Zone. Antimosquito work has been carried on at all of these stations to the extent that funds available have permitted.

In the early part of 1920 the Bureau of Medicine and Surgery recommended to the department that constructive programs be adopted for all stations where disease-carrying mosquitoes are breeding, and that sufficient funds be obtained, if possible, to provide systematic control from year to year, with a reasonable advance work of a permanent nature, maintenance in connection with permanent improvements already secured, and emergency work done each mosquito-breeding season, in the form of temporary ditches, oiling, drainage, and plant cutting.

The economic losses from malaria are so great that comparatively little difficulty is encountered in the neighborhood of great industrial centers in securing the cooperation of State and local authorities as well as of business interests, for the eradication of mosquitoes in the vicinity of a naval station, but at stations surrounded by improved property it is not to be expected that protection from the environment can be secured except by the Navy itself. Where malaria is being disseminated it should be possible for naval authorities to spend sufficient money for the performance of necessary work beyond the limits of the station when the health of naval personnel requires such action. In any event cooperation from outside sources can not be had unless the Navy sets the example by carrying out effective control in its own reservations. The recommendations of the Bureau of Medicine and Surgery were concurred in by the Board of Yards and Docks and by the Chief of Naval Operations.

At the navy yard, Philadelphia, Pa., during the year, the work of searching for cross connections which might allow polluted water to be introduced into the drinking water pipe system has continued, and it is believed that all cross connections have now been eliminated. Dual systems of water supply are always sources of danger, because of the chance that polluted water will be used accidentally for drinking purposes even when there is no pipe connection between the safe and the unsafe supply. With cross connections there is constant danger that polluted water will, accidentally, or by leakage through gates or valves, enter the pipe system intended solely for pure water. From time to time some city or industrial company has the le-

brought home that it is dangerous to permit cross connections between the pure water supply and the system supplying water of inferior quality. Such conditions should not be allowed to exist at naval stations, even to permit the use of salt water for flushing purposes or fire protection. It has been pointed out for years that cross connections between the salt water flushing system and the fresh water supply in pantries and bathrooms are likely to be dangerous on board ship.

During the year sanitary consideration has been given to the matter of providing safe sources and means of water supply at the United States Naval Ammunition Depot, Iona Island, N. Y.; United States Naval Torpedo Station, Alexandria, Va.; United States Navy Projectile Plant, Charleston, W. Va.; United States Navy Mine Depot, Yorktown, Va.; United States Naval Station, Key West, Fla.; and United States Naval Station, Guantanamo Bay, Cuba.

With exhaustion of the supply of the Norfolk City Water Co., in January, 1920, the shortage of water at the United States Naval Operating Base, Hampton Roads, Va., necessitated temporarily the transfer of a large percentage of the personnel to ships and other stations. It became necessary to transport water to the operating base in barges. There was great danger for a time that polluted water would be introduced into the piped water system on the station but careful sanitary supervision with daily bacteriological control and adequate treatment with chlorine prevented disease.

Sanitary and hygienic conditions afloat have been generally satisfactory. The problem of heating ships satisfactorily in cold weather without interfering with good ventilation and especially without reducing the relative humidity of the air in living compartments to a percentage conducive to the development of nasopharyngeal disorders, has not been solved. However, in the main, sanitary reports from ships which are heated by ordinary steam radiators and ventilated independently by means of cold air delivered through blowers, indicate that such ships have been quite comfortable with regard to both heat and ventilation. On the other hand, sanitary reports from ships which are heated and ventilated by a combined system are in almost complete agreement that the system is unsatisfactory. The reports indicate difficulty in keeping living quarters warm in very cold weather as well as difficulty in preventing overheating when only a little artificial heat is required. Attempts to humidify the air to a proper degree have generally failed. Another difficulty has been that of properly heating a large compartment without overheating small compartments on the same system of supply. Inability to control the temperature and air supply locally seems to constitute an important defect.

From time to time during the year consideration has been given to the part played by contaminated mess gear in spreading the causative agents of communicable diseases. This subject has been discussed repeatedly and it is believed that proper precautions are now being taken to see that all articles which should be sterilized by steam after meals are sterilized as a matter of routine.

The bureau has been interested in sanitary conditions in civilian communities adjacent to and in the vicinity of naval stations. The State health department of Maryland has been requested to take such measures as may be practicable to improve conditions at Indian-

head, Md., where the usual problems of rural sanitation exist. Study of similar problems in the village of Quantico, Va., has been made. Sanitary control is maintained there by the authority of the post, the post surgeon having been appointed special health officer by the commissioner of health of Virginia, so that he may exercise delegated civil authority.

With the appearance of plague at New Orleans, La., Pensacola, Fla., and other ports on the Gulf of Mexico, measures for the eradication of rats and elimination of rat breeding places have been instituted at various naval stations along the Gulf and at the United States Navy Yard, Charleston, S. C. The necessary work is being performed under allotments made for the purpose by the Bureau of Yards and Docks.

The menace of smallpox among civilian employees at industrial yards and plants, and among the employees of contractors has arisen in several instances. The health of naval personnel has been seriously endangered, but cases of smallpox have occurred from time to time among civilian employees. Many of the persons exposed have submitted voluntarily to vaccination for their own protection. Compulsory vaccination against smallpox and against typhoid and paratyphoid fever as well, is not only to the best interests of the Government but likewise to the best interests of the employees themselves. Submission to typhoid prophylaxis and successful vaccination against smallpox might well be made one of the conditions upon which applicants for employment are accepted, unless satisfactory evidence of protection within a period of five years is presented.

In January of this year a new instructive poster dealing with the subject of electric shock and first-aid treatment in cases of electric shock asphyxia, drowning, and asphyxiation by carbon monoxide gas, was published and distributed to all ships and shore stations.

Among miscellaneous problems arising, consideration has been given to the matter of developing a satisfactory method of denaturation of alcohol for use in the Navy.

#### DIVISION OF PUBLICATIONS.

The edition of the Annual Report of the Surgeon General, United States Navy, is limited by law to 2,500 copies. After the members of the Medical Corps, certain officials, and scientific bodies have been supplied, remaining copies are available for general distribution upon request to the Bureau of Medicine and Surgery. The report presents a summary of the work of the Medical Department for the fiscal year and complete statistics of diseases and casualties for the preceding calendar year.

With the next issue the United States Naval Medical Bulletin enters upon its fifteenth year of unbroken existence. The purpose of this quarterly is to collect for members of the Medical Corps scattered all over the world information calculated to increase their efficiency in the comprehensive field of naval medicine. Reports of unusual cases; of methods of treatment, or administration peculiarly adapted to the naval service; descriptions of surgical instruments and sanitary devices; data regarding distant and rarely visited ports; discussion of all the problems that arise in the medical department of a ship, hospital, or station and translations or reviews of foreign cu-

literature or extracts from American periodicals not accessible to officers serving at sea, are the contributions most desired.

During the war many officers were too much engrossed with other and paramount duties to write for the Bulletin or else preferred to send their papers to journals having a larger circulation. Fortunately members of the Reserve Force came to the rescue and helped very materially to carry on the quarterly. It is now high time for officers of the Regular Establishment to awaken to a sense of their obligations to the official organ of the Medical Corps. Special thanks are due to Lieut. Commander Lucius W. Johnson, Medical Corps, United States Navy (a former editor of the magazine), who has ably and promptly reviewed all the material sent to him for that purpose.

Publishers desiring to have notices or reviews of new works published in the Bulletin should send such volumes direct to the editor. They will be returned.

The Supplement for the Hospital Corps, which began as a modest pamphlet of two score pages, now fully equals the parent magazine in bulk, in the character of the illustrations, and in the subject matter. It is intended as an instrument for the general as well as technical education of the Hospital Corps.

The price of the annual subscription to either the Bulletin or the Supplement is \$1 (domestic), \$1.25 (foreign). Address the superintendent of documents, Government Printing Office, Washington, D. C., inclosing cash or money order (not checks).

A new Drill Book for the Hospital Corps, enlarged and completely revised, has just been issued.

Notes on Preventive Medicine, issued monthly by the Division of Preventive Medicine of this bureau, brings to the notice of all members of the corps statistical and sanitary data calculated to help them in the discharge of their duties. This publication serves as a vehicle for promulgating official orders governing medical administration.

Medical officers of the Navy and others are urged to collect and send in to the Division of Publications any information that might be of service in the preparation of a history of the Medical Corps. No such work is contemplated at present, but a time will come when the value and interest attaching to the subject will be appreciated and the task undertaken.

[The following notes on fleets, ships, hospitals, stations, barracks, etc., are abstracted from the annual reports of their respective senior medical officers.]

#### FORCE AFLOAT.<sup>1</sup>

##### UNITED STATES ATLANTIC FLEET.

The United States Atlantic Fleet assembled at Guantanamo Bay, Cuba, about February 8, 1919. It consisted of the various divisions—battleships, destroyers, train, auxiliaries, etc. The usual winter drills, maneuvers, recreation, and athletic events were held, and on March 22 the fleet visited Trinidad, British West Indies. On April 9 the fleet sailed for New York and arrived in the North River on

<sup>1</sup>Arrangement by fleets is approximate. There have been many recent changes. Some of the vessels are unassigned.



April 14, where leave and liberty were granted for one month. The month was spent at Hampton Roads, Va., where gunnery trials and other drills were held, after which practically all of the ships visited home ports. On June 30 the fleet was divided into Atlantic and Pacific groups, the Pacific group sailing on July 1 for the Pacific coast. The remainder of the Atlantic Fleet went to the yards. Some of the battleships had sufficient men to operate the ship, and they carried on exercises during the summer and fall months with reduced complements. The destroyer squadron carried on various but restricted maneuvers during the summer at Newport, and during the fall and winter at Pensacola, Fla.

Owing to the fact that practically all vessels of the fleet except a few mentioned were laid up in the yards undergoing extensive overhaul, it was impossible for the fleet surgeon to conduct any of the inspections. His work has been confined to such contingencies as presented themselves and to conferences with medical officers on every occasion offered. The destroyer squadron now has a squadron medical officer with an assistant to supervise the work of the medical departments, and although under difficulties, such as frequent changes among pharmacist's mates, commissioning and putting numerous destroyers out of commission, etc., this officer has zealously discharged his duties and built up and greatly improved the work of these pharmacist's mates.

The dental needs of the fleet have been met in a satisfactory manner, but on many ships it has been observed that the entire crew needed dental attention, due to the influx of recruits not fully meeting standard physical requirements. After observing the method of carrying on dental work, it is recommended that dental officers be required to examine every man on board ship at stated intervals, say, once a year. The dental officer could then keep a chart of the man and confer with the medical officer, who could arrange with the executive officer a schedule of appointments for the crew. A certain portion of the day could be set aside for the emergency work present at each sick call. If some such method were adopted, the work of the dental officer would be conducted in a manner most suited to serve the needs of the crew, and the dental charts prepared at the time of the examination might, upon the transfer of the man, if he had not been attended to, be transferred with his health record. This scheme is not proposed to replace the present dental system, but the health record—a signed sheet of completed dental work. Generally speaking, dental appointments should be made through the sick bay, the medical officer determining whether or not the case is an emergency or a routine one. This is not done to interfere with the professional work of the dentist, but to prevent the constant stream of men into the dental office seeking appointments, which seriously interferes with his work. On some ships the medical officer does not pay enough attention to the dental department, unduly seriously or intentionally considering it a separate department.

The greatest concern of the Medical Department has been concerned in the Hospital Corps situation. After the release of the Reserve Force and numerous chief pharmacist's mates having been given temporary appointments as pharmacists, the medical officers on ships found themselves with one or two pharmacist's mates of

tain mental caliber and the remainder recruit hospital apprentices, all of which made a serious situation. Fortunately the ships were tied up in the yards, where hospital facilities were available. During the summer the number of hospital corpsmen aboard ships was increased by details from the bureau and also by the efforts of some medical officers who induced men of other ratings to change to the Hospital Corps. As a means of partially relieving the situation, it is planned in the fleet to carry on intensive training of the men and to continue this for some time, although it must not be forgotten that the evil does not lie entirely with the fleet for correction. Other branches are trained aboard ship for duty aboard, but the Hospital Corps must be trained on shore for duty aboard ships, except, of course, for the usual ship's routine and drills.

(1) We must set a higher standard of education for the Hospital Corps.

(2) The examinations should be more uniformly conducted.

(3) The requirements for the rating of chief pharmacist's mate should be of the highest order and pharmacist's mates should not be permitted to take this examination until they have proved their fitness and capacity for the rate by a tour of sea duty.

(4) A more detailed and descriptive system of instruction aboard ship than that given by article 2642, Naval Instructions, should be followed.

(5) Chief pharmacist's mates should be sent through training schools or else be given intensive training in hospitals.

(6) Effort should be made to present the same opportunities to the Hospital Corps as are given other branches of the service, i. e., fit them for promotion in the service or to return to civil life trained to follow some trade, which can be made possible for the hospital Corps by supervising their academic and professional studies.

Despite the lack of trained personnel, the hospital corpsmen acting independently on destroyers and smaller ships have conscientiously and efficiently performed their various duties. It is recommended that official action be taken to regulate the duties performed by hospital corpsmen on small ships. Their duties should be clearly defined and should consist of professional work only. Even for the chief pharmacist's mates on destroyers to do commissary duty opens an easy road for additional duties to be asked of them. Commissary work takes them away from the ship entirely too much for the welfare of the crew.

The general health of the fleet during the year has been excellent. Epidemic diseases were practically nil. Early isolation of infected cases and the hygienic care of the ships were responsible in part for this lack of any serious outbreak. The general physique of the average recruit enlisted during the past six months has been below standard, particularly in the case of those for the engineer department. The hygienic condition of the ships in general has been good, considering the fact that most of them were tied up to the dock for six months of the year. Particular attention has been paid to frequent airing of bedding; swabbing down the decks in the living quarters with a 2 per cent cresol solution; boiling or flaming the scuttle-butt tips; using boiling water for washing mess gear; and sleeping head to feet.

Battleships should have an improved and enlarged incited decks in dental offices; better ventilation in dynamo rooms.

Destroyers should have more suitable bathing arrangements for proper stowage of medicines in dispensary; running in the dispensary. The crews of destroyers should be examined periodically by a medical officer. Reduce the present allowance for bedding and linen (Medical Department) allowed destroyers. Storerooms are not available for this quantity of linen and the present allowance would be sufficient.

Colliers, submarines, aircraft, and tugs should have the crews examined periodically by a medical officer.

On all battleships subsequent to the *Florida-Utah* class, combined heating and ventilating systems are deemed woefully defective and inadequate. The consensus of opinion is favoring heating with steam radiators. Practically every ship in the Fleet asks for additional ventilation, usually in the cells for punishment ward (separate system), third deck, dynamo rooms, radiator rooms, machine rooms, and radio-operator booths. That the combined heating and ventilating system is a great improvement and recommend a return to the steam radiator for heat and supply for ventilation only. Despite the most careful supervision is unsatisfactory and is to be unreservedly condemned.

The present method of using battleship linoleum as a deck is ideal, providing it is not allowed to become worn through or loosened. Swabbing this deck with cresol solution, in addition to daily cleaning and sweeping, keeps it in excellent sanitary condition. Ventilation of storerooms for the most part is not up to the standards. Many ships request additional ventilation, heating, and storerooms. Potato stowage in closed compartments below deck should not be permitted, for in warm weather it produces odors and induces sprouting. Some form of sanitary drinking water should be installed in all fire rooms of ships in commission.

In their efforts to win the championship in baseball, football, basketball, ships neglect the interdepartmental or divisional athletic teams to a great extent and to the detriment of about 98 per cent of the personnel. The efforts of athletic officers of ships are quite concentrated upon winning the championship—which means athletic contests between 9 to 20 men—rather than on supervising athletics for the benefit of the crew of, say, 1,000 men. This could be remedied by instituting proper spirit and developing football, baseball, and basketball among various divisions, which would aid the above purpose by constantly keeping in training a large number of men to act as substitutes for the ships' teams. Recreation and athletics go hand in hand. In southern waters, during the winter cruise, almost all members of the crew are given ample time for recreation and athletics, but this feature is not properly supervised the year round. During the other nine months of the year, with the fleet operating in northern ports, athletics are forgotten except for the ships' teams. Liberty and leave are not recreation and athletics, a fact which should not be lost sight of. An effort should be made to have ships' divisional and various departmental teams at work the year round.



The medical work of the fleet during the past year has been of a high order. As before stated, preventive medicine has greatly lessened the epidemic and contagious diseases, although the ships were under the very worst sanitary conditions, the recruits received were not up to physical standards, and shore liberty was freely given. Thirty per cent of the deaths in the fleet were caused by drowning. No one particular diagnosis predominated among the cases surveyed from the service. The crews of the various ships of the fleet have been thoroughly examined for cowpox vaccination and administration of typhoid prophylaxis, and a considerable percentage were found to be lacking in this respect. Venereal disease still holds the center of the stage as one of the greatest evils which we have to combat. The concerted efforts of the Sixth Division, Bureau of Navigation, of the Bureau of Medicine and Surgery, of commanding offices and medical officers, may bring about a lessening of this peril within a short time, but early prophylaxis is our only reliance for those already exposed.

The surgery in general aboard ships of the fleet, when there is no hospital ship, has proved that it is possible to do any major operation with the present equipment. The battle dressing station equipment and training of personnel remains the same as during the war. On most ships the stations are well lighted, well heated, and well ventilated, and have all modern equipment and appliances. During general quarters the stretcher bearers and hospital coxsmen are drilled in the various duties required of them. First-aid instruction is being given to officers and men by divisional officers and medical officers.

With but few exceptions, all medical officers consider the present medical supply table adequate for all needs. It is understood that the bureau is developing a new "field supply table." Some field equipment should be furnished the fleet, regardless of the amount placed on the hospital ships, and, among other things, should consist of hospital tents, lighting apparatus and sterilizing outfits. It would be possible to equip a field hospital by drawing upon the ships for the other necessary equipment, if these three articles were available. Some such outfit should be placed on division flagships, or else carried by the train flagship, in addition to the outfit or outfits supplied the hospital ships. All the larger ships should be supplied from the medical supply depot with a weight scales equipped with a height-measuring device, these scales to be a part of the equipment of the sick bay.

A better system of professional contact between medical officers ashore and those afloat should be worked out for their mutual benefit. A three-year cruise tends to produce stagnation unless the medical officer comes in contact with the hospital clinic. The naval hospitals should invite the medical officers on ships in port, to visit them and see interesting cases; also to follow up their own cases and the medical officers of the Navy Yards might keep track of the interesting clinics in civilian hospitals and make arrangements for medical officers on ships in port, to attend these clinics.

It is urged that the bureau when sending circular letters to "all naval hospitals," also send copies to the medical officers in the fleets, in order that they may keep abreast of the times and changes. As the situation now stands, when a medical officer finishes a tour of

sea duty and goes to a hospital or station, he spends the first months in reading up changes and acquainting himself with routine. The publications furnished the medical officers at sea are satisfactory, but might be augmented by the addition of one or two standard medical publications. The Preventive Medicine Bulletin issued monthly by the Bureau of Medicine and Surgery, has superseded the Fleet Medical Bulletin formerly issued by the fleet surgeon. Information contained in the Preventive Medicine Bulletin is of a wider scope and, of course, the statistics are more reliable and also more of an index of the prevalence of disease. A routine of issuing information to the fleet from the commander in chief, in the form of fleet letters and routine orders has eliminated the necessity of passing information to the medical officers through a fleet medical bulletin. Fleet medical conferences are held when opportunities offer and we are striving to maintain an interesting meeting at least once a week. They are informal affairs and the opinions expressed are not cut and dried.

In general, the location, heating, lighting, ventilation, and equipment (under the cognizance of Bureau of Construction and Repair) of the sick bays seem to be adequate to meet all needs. In reports received, it would appear as if some consideration should be given the following points in new ship construction.

(1) Enlargement of the surgeon's examining room with facilities for eye, ear, nose, and throat work.

(2) Placing the dental office in the sick bay country.

(3) A small room for dressing cases is seriously needed on all ships.

(4) Ample lockers should be installed for soiled linen, patients' clothing, and hospital corpsmen's clothing. This feature is usually neglected.

(5) Tiling the decks and placing drains in the decks of dressing rooms, sick-bay baths, venereal prophylaxis rooms, isolation wards, and dental offices.

(6) Increasing the supply of textbooks allowed the Hospital Corps and adding manuals on nursing, operating room work, first aid, surgery, bandaging, and massage.

#### SUMMARY OF RECOMMENDATIONS.

(1) Either a return to the supply and exhaust system of ventilation and steam and electric radiators for heating, or a workable humidifying device installed in the combined heating and ventilation system.

(2) Give more attention to athletics for the entire crew rather than center all efforts on the "ship's team." Supervise athletic contests at least once a year rather than for only 3 months while in southern waters.

(3) More rigid examination of recruits at training stations before drafts leave for ships.

(4) A hospital ship for the battleship divisions and another for the destroyer squadrons.

(5) Have crews of small ships, such as destroyers, tugs, sweeps, eagle boats, and men on special detachments, examined at intervals by a medical officer.

(6) Have dental officers conduct yearly examination of dental needs of crew.

(7) Scales with height-measuring device for all sick bays.

(8) Establish professional contact between medical officers ashore and those afloat.

*U. S. S. Arizona.*—The health of the personnel has been very good. Preventive measures used included a daily sweeping of the decks in the living spaces with sawdust wet with sapo-cresol solution, and instruction of the personnel in the importance of reporting to the medical officer at the beginning of common colds, etc. A weekly inspection of cooks, bakers, mess attendants, and stewards for venereal infection is held. The daily average of sick has been 6.56. The disease causing the greatest damage in sick days was tonsillitis, acute follicular, with 367 days. This disease during the months of November and December has been quite prevalent among the deck force and mess attendants. There has been noted an almost total absence of the disease among the engineer force, without any evident difference in the mode of living of these two classes of men, except that the duties and living quarters of the deck force exposed them to a wider range of temperature and a great deal of inclement weather during these months. The unheated portion of the third deck aft does not seem to have been responsible for a higher rate of tonsillitis than among those billeted in heated compartments.

The heating is by thermo tank system. In cold weather the air supplied for ventilation is heated to the desired temperature by passing over steam coils, at the same time being humidified. The heating system has received a great deal of adverse comment, but from a short period of observation it is believed that most of the conditions causing criticism, when occurring, are due to lack of proper supervision. The air as delivered frequently seems too dry, necessitating a higher temperature to make the occupants of a compartment comfortable. It is claimed that the humidifiers are capable of regulation, and much improvement could be made by taking psychrometer readings, and adjusting the humidifier to supply the proper degree of moisture. The installation of many of the louvers is doubtless faulty. For example, the ward room is supplied by two large louvers, and as a result unpleasant drafts are experienced by those sitting near them. No doubt several small ones having the same total capacity, and judiciously placed, would greatly improve the heating in this space. It is further suggested that installation of louvers in some compartments that would permit the delivery of the heated air nearer the deck would add to the efficiency of the system. The third deck aft, where a number of men are billeted, is adequately ventilated, but there is no means of heating the air supplied this space, and in cold weather it is extremely uncomfortable for the men living there.

The water supply while at the New York Navy Yard has been from the Brooklyn water system, through the navy yard; normally the water supplied is distilled in the ship's plant, and is reported to be abundant for all purposes, and of excellent quality. The sanitary fittings are of the standard Navy type and are satisfactory except the Jenkins closet installed in the ward room officer's toilet. These, it is thought, are without a doubt the most insanitary type on the

ship, as there is seldom one that is clean, unless it has just been scrubbed out. The flushing rarely removes feces which lodge on the posterior wall of the bowl, leaving not only a disgusting sight to the frequent users, but one that is most insanitary, particularly when the officers and warrant officers' toilets on the same deck are present on board. The siphon-type closet installed in the officers' and warrant officers' toilets on the same deck is superior from a sanitary standpoint, and should be installed in the other toilets high enough above the water line to permit of their use by the crews there is provided one seat for each 25 men of the complement, exclusive of engineers. These are of improved type, and are satisfactory from a sanitary standpoint, and the facilities are reported to be ample. There are six trough urinals with a capacity of four men, making one urinal for each 39.6 men. There are eight shower baths, supplying fresh water while in port, and while at sea, making one bath for each 119 men. The officers' attendants have two showers, one salt, one fresh water. There are no washbowls installed in the crew's wash room, but there are fresh-water faucets, making one for each 34 men, each man having a bucket for washing. There is one steam pipe installed for hot water, which is not considered adequate. For the engineers' compartment is provided one seat for each 79 men, which is inadequate. There are three trough urinals with a capacity of four men, making one urinal for each 26 men. There are six showers (salt water) for each 53 men. There are 28 fresh-water faucets, making one for each 11.3 men.

The ship's laundry is of ample capacity, and is most efficiently conducted, supplying a much needed service for all hands.

The sick bay is located on the second deck, just forward of the main gun barbette, occupying the entire space between frames 25 and 26, with a net cubic capacity of 6,637 feet. It is equipped with two tiers. The equipment and fittings on the whole are satisfactory. It is believed that if a small compartment could be provided where minor dressings and laboratory work could be done, a great improvement would be effected. A narrow lead-covered passage already installed on the starboard side of the sick bay, intended for laboratory work, was found to be too high to be of any use except as a storage space for laboratory equipment. This has been lowered to a convenient height, and a small bowl supplied with running water and connected with the operating room drain installed adjacent to this table, which will add greatly to the convenience of the laboratory work. The heating and lighting of the sick bay is satisfactory. The medical storeroom is located on the second deck forward, and is ample for the purpose and well arranged. The lighting and ventilation are satisfactory. The operating room is located just aft of the sick bay, on the starboard side, is of ample size and very completely equipped. The dressing and instrument sterilizers, which during the war were transferred to the operating room, have recently been reinstalled in the operating room.

*U. S. S. Brazos.*—The food has been well prepared at all times. The only fault noticed was that the food was cooked too soon after each meal and allowed to become cold before it was served. The messing system has been that of serving food from pans and ladles, a portion on a man's plate before mess call was sounded.



is one mess cook for each 24 men, the food was cold and unpalatable when the men started to eat it. At the present time the mess cooks draw the food from the galley, hot, after the men are seated at table. The containers are passed around, allowing each man to help himself.

*U. S. S. Bridge.*—The ship's allowance is sufficient and ample for all ordinary requirements, but not when 400 or more extra men are sent aboard for transportation to distant ports. All the supplies received aboard have been in good condition, well packed, in satisfactory containers, and are not in any way to be criticized. It is suggested that atropine sulphate, in bulk, be added to the supply table, as it is frequently desired for use in eye cases. Hypodermic tablets should not be used in making solutions. Tincture of belladonna is so valuable a remedy that this, too, should be available.

The prophylactic room (venereal) is located directly aft of the bathroom, and while in the same deck house with the other rooms of the medical department, has no direct communication therewith, as the one door opens directly onto the main deck, facing aft. It contains about 450 cubic feet, is ventilated by one large door and two large ports, heated by a steam radiator and well lighted naturally by day and by electricity at night. It is well equipped and the equipment is all good and satisfactory, except the urinal or bowl for catching discharges during the treatments, which is of iron, painted, and therefore can not be kept clean and sanitary, and is always very unrepresentable in appearance. It is recommended that this bowl be replaced by one of enameled porcelain.

All the rooms of the medical department are located and contained in the after deck house near the stern, there being no other rooms or housing in this vicinity on same deck. In addition to the ventilation already named, each and every one of the above-named rooms is further ventilated by a system of suction pipes and funnels (exhaust) worked by an electric motor, a most satisfactory and commendable system of forced ventilation.

The deck house as a whole, however, has one objectionable feature, to which attention is called, one which may be fraught with much danger in case of accident, viz, located directly on top of said deck house over the sick bay are three large tanks of a total capacity of 10,000 gallons of gasoline. There seems scarcely any other place on the deck where these tanks could be placed, and under ordinary circumstances there is probably little danger from them, even when filled with gasoline, but in the event of a fire or an accident during battle, or an explosion from any cause, all people in the sick bay might and probably would be roasted like rats in a trap.

The complement of the Hospital Corps as designated is sufficient to care for the ship's complement, but is insufficient to care for the extra passengers very frequently attached to this ship for transportation, and in addition we are unable to get the number of hospital corpsmen which the ship is designated as rating. During the month of December we transported 400 marines from Charleston, S. C., to San Domingo, and a like number from San Domingo to Philadelphia, Pa., many of whom were suffering from malaria and other tropical ills. During the month of January, 1920 (although not in the period covered by this report), we brought to New York from Guantanamo, Cuba, over 200 men from the fleet and 18 sick from the U. S. S. *Solace*,

and we are advised that upon our next trip south to the Canal we will carry probably 200 to 300 men to the fleet. There is one medical officer and one chief pharmacist's mate attached to the ship. In addition we had two hospital apprentices, second class, whom was taken from the deck and had no experience whatever in sick-bay work, and the other was of about the same caliber. The two men did the best they could, and their faults and failures were due to inexperience and lack of training, but no others were available.

The drinking water is frequently and for quite long continuous periods found to have a peculiar taste, pungent and acid, somewhat similar to acetone. Repeated chemical analyses have failed to demonstrate anything deleterious therein, and it is believed that the taste is caused by the bitumastic covering of the pipes. The water frequently goes into the tanks hot from the evaporators, and in the case of the gravity tank it becomes necessary to heat it in cold climates to prevent freezing. It has been found that when the water reaches a certain degree of heat the bitumastic softens and flows through the pipes. In one or two instances such a condition has hardened again in the service pipes and stopped them temporarily. Since the last time this happened it is noticed that the pipes in sick bay that when very hot water is drawn the bitumastic still comes from the spigot in flakes, thus leading to the conclusion that the bitumastic has lodged in the joints and bends of the pipes and again becomes more or less fluid under the influence of the hot water contained in the passing water. It is suggested that studies be made to obviate this trouble, or that some other covering for the tanks be substituted for the bitumastic paint.

While the sanitary fittings and supplies are ample for the fleet, it is likely to be attached at any one time, they are insufficient to take care of any great excess of men carried as passengers.

A growing and increasing tendency is noted toward making the supply vessel a transport. On nearly every trip to the fleet this is required to transport men in addition to supplies. In December 1901 men were transported from one station to another, the highest number carried at one time being 402 (in addition to the regular complement). Owing to existing conditions such men are forced to sleep in the cargo holds forward, making their beds on the deck in various compartments, as there are no hooks or billets for hammocks in cargo storage spaces, and that part of the ship contains no water for bathing or drinking, urinals, water-closets, or any other hygienic conveniences except moderate ventilation. The space is cold in winter and very warm in summer and in the Tropics. A supply ship is not considered a proper vessel for a transport from a medical or hygienic standpoint, and it is suggested that its use for such should be discontinued.

*U. S. S. Bridgport.*—The sick bay contains 32 bunks and is located on the starboard side of the first deck. There is a small quarantine ward situated forward of the sick bay which is without windows and no head. This compartment has four bunks. It is so situated that it would constitute a grave menace to the health of the crew in the event of contagious diseases of a virulent nature kept therein. The compartment is large and well lighted. An office adjacent to the dispensary has been assigned as a medical office. This is large enough to

work for the ship and the flotilla. The dental office forward of this office is well lighted and equipped.

The location of the sick bay is its poorest feature. The shipwrights work on the deck above, with the carpenter shop immediately aft. Below are the ice machines and the blacksmith shop equipped with steam hammers and large machinery. The noise in port is constant and makes it almost impossible to accurately examine a patient. The vibration is so great that microscopical examinations are next to impossible. The removal of the sick bay to the berthing space in the superstructure has been suggested.

The medical storeroom is small and out of the sick-bay country. An attempt will be made to carry all the supplies that are desired for emergencies in the flotilla.

The medical department personnel should consist of at least two medical officers until all the flotilla is assembled when three officers could be well employed, the total personnel under these conditions being about 3,500 men. A pharmacist has been requested for the duty which comes within his province. Hospital corpsmen should be provided in sufficient number to look after the sick of all the flotilla aboard the tender, the destroyer berthing spaces being such that the sick should not be quartered therein, especially in warm weather. A dental officer is attached who attends men of the entire flotilla.

*U. S. S. Camden.*—There was an outbreak of acute lead poisoning while in the navy yard at Philadelphia, in September. It was found on examination that large quantities of red lead had been left in the pipes of the fresh water system by navy yard workmen. Chemical examinations of the drinking water showed a large percentage of lead (1.3 parts per million, or 0.076 grain to the gallon). The entire fresh-water system was thoroughly cleaned out and blown out with steam. After this no new cases developed. Altogether there were about 150 cases of poisoning among the ship's company, 11 of whom were admitted to the sick list. The symptoms were practically the same in all cases and were those of an acute enteritis: Acute abdominal pain and tenderness, marked diarrhea, occasional nausea and vomiting, with pronounced lassitude and anorexia. After the lead was discovered in the ship's drinking water, bottled water from ashore was used exclusively until the ship's water was found free of lead. The attacks cleared up promptly under appropriate treatment and no new cases developed after cleaning of the fresh-water system.

*U. S. S. Carola IV.*—The *U. S. S. Carola IV* (barracks) was first placed in commission July 17, 1917. At the time of writing this report this ship has been placed out of commission, December 31, 1919. The remaining personnel which consists of 6 officers and 69 enlisted men are now attached to the United States Naval Port Office, Brest, France, the enlisted personnel now being on subsistence. Of this number about 40 men are for duty with the Navy exhumation unit which is to begin in the near future the removal of the United States Navy dead in France. The *U. S. S. Carola IV* has been unseaworthy and has been tied up in the French navy yard, being used solely as a barracks in which a varying number of men have been quartered. The balance of the personnel has been quartered in various buildings which make up the Château de Brest.



The complement has varied greatly, having reached a high of 2,311 men during March, and this has been steadily decreasing until the present time. The average complement for December 1920. The average complement for the year 1919 was 1,422.

The admissions for venereal diseases were high, leading all. There were a great number of prostitutes in Brest, who came from all parts of France on account of the great number of American soldiers and sailors stationed here. At one time when a man reported with a venereal disease an attempt was made to approach the woman, and if found she was turned over to the civil authorities for action. In this way the activity of a great number of prostitutes was reduced. Venereal prophylaxis was easily obtained there being several United States Army prophylaxis stations in Brest. There was also a Red Cross prophylaxis station, which was located on a short street where there were several houses of prostitution. The sick bay here prophylaxis was also obtainable.

*U. S. S. Chattanooga.*—This ship is supplied with a sick bay, a mosquito-proof compartment, dispensary, and medical storeroom.

The sick bay has 840 cubic feet of air space. Two air ports and two additional air ports which open into the toilet, furnish ventilation. The sick bay is located in the forward compartment on the gun deck, a compartment which is not well ventilated when the hatches have to be closed while the ship is heading into the sea. The evaporators are situated between the sick bay and the dispensary. They cause a radiation of considerable heat, which at times raises the temperature of the sick bay to 95 F., or higher when the climate is warm. This feature is a slight handicap in the best treatment of patients during the summer, but no changes in remedying this condition appear to be practicable, unless a ventilator of some type could be installed in this main compartment. The lighting of the sick bay is very good.

The mosquito-proof compartment, which is also situated in the forward compartment of the ship, contains 720 cubic feet of air space, four bunks, two air ports, one steam radiator, and an electric fan.

The dispensary and storeroom are of ample size and are conveniently situated in relation to the sick bay. This ship is supplied with a modern steam autoclave for sterilizing dressings. This was installed one year ago, and has probably been a big factor in preventing the infection of wounds under treatment.

*U. S. S. Chester.*—Recommendations: All wash rooms should be equipped with adequate drainage on both port and starboard.

Steel lockers in crew's wash rooms to be replaced by wire lockers.

Aluminum food carriers for general messing.

Quality of heavy underwear to be improved.

Addition of 1-gallon bottles to the supply table.

*U. S. S. Cheyenne.*—The health of the crew and officers has been exceptionally good, especially when the fact is considered that the ship was stationed at Tampico, Mexico, for nine months, with very limited shore liberty, and often for a month or so at a time that the men had no opportunity for indulging in athletic sports ashore. Practically all the sickness has been among the new men. The majority of the recruits who have been shipped since the first of the year were immature boys, ranging from 16 to 18 years. They are not



active duty, and the wonder is how they ever passed the physical examination for the service.

On June 29 began giving 5 grains quinine sulphate daily to every man on the ship. This amount was soon increased to 10 grains a day. This was continued until October 26, when it became impractical to give it, as so many of the men were going on leave. This treatment appears to have been very effective in preventing malaria, and practically all of the cases of malaria were due to the men avoiding treatment for a few days or lowered resistance through exposure, overwork, or alcohol.

While the admissions for venereal disease seem high, when compared with the number of exposures as shown by the prophylactic register the percentage is low. This was due to the fact that none of the men were allowed night liberty and that they were made to report for prophylactic treatment as soon as they came aboard.

*U. S. S. Columbia.*—During the month of March this ship visited Ponce, P. R., and remained there four days, in which time 12 cases of venereal disease were contracted, over one-fourth the number for the entire year. These cases developed in spite of antivenereal talks, illustrated films, posters, and the usual prophylaxis. The mayor of Ponce, during the stay of this ship in port, closed the regular houses of prostitution and confined the inmates. However, it is evident that there were quite a number of promiscuous or non-regulated prostitutes at large, as 230 men appeared for prophylactic treatment out of a complement of 403.

The new-style health record recently issued is an improvement over the old one in many respects but there are certain faults. The left-hand margin of the history sheet is too small for such abbreviations as may be used. The dental and medical abstracts can not be separated. This fact is objectionable in that when a patient visits the dentist he takes with him both abstracts. The dentist usually holds the abstract over to make the necessary entries and forwards same by mail. In the meantime, the man may be transferred or as frequently happens the abstract is lost. Keeping these abstracts separate would prevent many of them from going astray. The old abstracts are much larger than the sheets of the new record which gives the new record an untidy appearance when this insertion is made.

*U. S. S. Connecticut.*—During the stay in the yard, owing to the depletion of the complements of the ships, a community messing system was established, by which food for a group of three or four ships was prepared and served on board one of this group. This system is found to work out satisfactorily.

The venereal head is at present located in the after part of the crew's washroom on the starboard side of the gun deck forward. This location on the deck above that occupied by the sick bay makes proper supervision difficult. If possible a more suitable space in the vicinity of the sick bay should be allotted, and proper fixtures installed as soon as possible.

The medical storerooms are poorly ventilated and at times damp, causing swelling of the corks and deterioration of the perishable supplies in a short space of time. It is considered essential that an additional storeroom in a dryer, better ventilated, part of the ship be set aside for the use of the medical department.

*U. S. S. Culgoa.*—It is to be noted that during the period July 14 to December 30 there have been only 11 admissions to the sick list and no other than these on the binnacle list. The crew therefore enjoyed extremely good health during this period. Of the 11 cases during this period, 4 were venereal and 4 were accidental. Of the 36 original admissions for disease during the year, 15 were venereal cases. The crew have been frequently warned against exposure, and urged to use prophylaxis. This, however, was not used in some cases until 12 hours after the exposure, which probably accounts for its lack of effectiveness.

The lighting for ordinary purposes is satisfactory. For reading, study, or writing it is entirely inadequate, and is the cause of eye strain. If three drop lights with green shades were installed on one of the mess tables on the port side and this table allowed to remain standing until tattoo, it could be used as a writing table, study table, and for games.

All supplies furnished the medical department have been satisfactory with the exception of adhesive plaster. The gauze on the rolls seems to have been of a weak fiber, the plaster being removed with difficulty and resulting in a great deal of waste. It is suggested that the fluid extract of larkspur be added to the supply table. This is recognized as the most effective remedy in ridding the body of pediculi. It is much cleaner and is more easily and effectively applied than mercurial ointment.

The pharmacist's mate, third class, now on duty was obtained from the deck force. He was first brought to the attention of the medical officer by the following act: On September 9, 1919, one of the enlisted personnel fell from a boom into the water between the ship and the pier. Vail, C. G., without the least hesitation plunged into the space between the ship and dock striking the water at the same time as the falling man. The man was rescued as a result of this expeditious action, but died in a few minutes of a fractured skull. No commendation has ever been received from the department by the above man for this act. It is recommended that at least a letter of commendation be sent him.

*U. S. S. Delaware.*—The food supplied has been excellent and of good variety, but none too well prepared, due to the inexperienced new cooks.

A large number of men have arrived on board from the various training stations with defective teeth. The dental surgeon states that it will take over a year to overhaul and treat the present complement, not allowing for any changes in personnel. It is believed that more thorough examination and treatment of the men should be given in training camps prior to their transfer to seagoing vessels.

It has been noted that men arrive on board ship with a rating of firemen, third class, who are unfit physically to even enter a fireroom being underage, undersized, and underweight. This condition should be altered to a certain extent by change of rate on board, but not until after the man has demonstrated his unfitness to perform the arduous duties below, and usually after having been put to extreme physical effort in trying to make good, when he quite collapses from sheer weakness. The greatest care should be exercised in selecting men for duty in the firerooms.

*U. S. S. Des Moines.*—At present there are 9 officers and 90 men attached to this vessel, which was first commissioned in 1904. The disparity between the number of officers and men is due to the fact that many of the crew were duration-of-the-war men and discharged upon the return of this vessel from north Russia in October, 1919. In addition, there have been a great number of men transferred to other ships having depleted complements, thus leaving this ship with a complement barely sufficient to maintain her in proper sanitary condition.

It is considered that the health of the officers and men has been excellent. The incidence of venereal disease may seem high. The majority of the cases appeared after periods of five-day leave in both Paris and London following a five months' tour of duty in the country bordering on the White Sea, north Russia, where rigid restrictions were in force. Furthermore, a number of the cases noted occurred not in the crew but among enlisted men of the United States Navy and Marine Corps returning from Brest, France, aboard this vessel.

There have been many difficulties to surmount with regard to the food owing to the duty of this vessel in north Russia, but happily there is no complaint. It was almost impossible to obtain fresh vegetables, except at the end of the short Arctic summer, when potatoes were to be had. Owing to the high prices of foodstuffs, bartering with natives was engaged in to a great extent. The deficiency in the vegetable supply was made up in some degree by the use of canned vegetables. Despite the extensive use of canned foodstuffs, there were no cases of food poisoning or food deficiency diseases.

At the present time and during the period the *U. S. S. Rappahannock* is undergoing alteration from a cargo carrier to a fleet supply vessel, her crew is messed aboard this vessel. The port side of the gun deck adjacent to the galley has been assigned to the crew of the *Rappahannock* for messing. The cooks and bakers of both ships make use of the galley at the same time. There is no overcrowding as the combined crews of both ships do not exceed the normal complement of the *Des Moines*.

Arctic service, in which this vessel was employed for a portion of the year, presented a new problem with reference to the proper type of special clothing designed to meet extreme cold weather. In this connection it may be said that the regulation issue of winter underclothing, overshirt of blanketing and wind-proof outfit proved to be entirely adequate and satisfactory.

The supplies requisitioned for and furnished to this vessel were somewhat in excess of the ordinary requirements owing to the fact that excessive landing force activities were contemplated at the time the requisition was forwarded to the bureau. The excess material was disposed of in accordance with orders of the commander, United States naval forces operating in European waters, viz, forwarded to United States Naval Headquarters, London, England.

No provision is made for isolation of contagious diseases. It has been the practice to erect tents upon the main deck for this purpose when necessary. The full use of this method is of course, at times, a matter of difficulty owing to the weather.

*U. S. S. Eagle 1.*—A few remarks are pertinent relative to venereal disease on the *Eagle* boats Nos. 1, 2, and 3 up to November 30 when

the *Eagle* boats were separated. The data from *Eagles 2* and *3* were obtained from the division medical officer and cover up to the time of this writing 1,046 registered prophylactics. Special attention was paid to securing accurate data whenever possible. It is, of course, to be remembered that some of the men may have been under the influence of liquor while taking prophylaxis. *Eagles 1* and *2* gave a five day leave in Paris. The result was 26 cases of venereal disease. The men could not get back to the ship to get prophylaxis. Also, three of the four cases developing at Venice took prophylaxis after six or seven hours had elapsed since intercourse. In Brest, where venereal disease is widely prevalent, three and one-half hours liberty were allowed on week days and six hours on Sunday and the result was no venereal disease traceable to Brest. *Eagle 2* contracted one case in Brest. The men were cautioned as to conditions in every port visited. The statistics show that prophylaxis taken within three and a half and four hours has been valuable in every case but one and it may fairly be assumed that in this case the man was careless and did not take prophylaxis in the proper manner. Practically all venereal disease contracted on this cruise was directly traceable to Paris, where the men say they could not find prophylaxis stations. The result was 32 cases from the three boats traceable to Paris.

*U. S. S. Florida*.—Facilities for the treatment of the sick are very satisfactory except in two respects; the location of the sick bay is unfortunate in that this section of the ship is very noisy and interferes with physical examinations while at the same time bed patients are disturbed and would do much better in an atmosphere of less confusion and turmoil. The other defect is the absence of a suitable place for minor surgery and pus cases such as infected wounds, boils, and abscesses. As the main operating room must be kept in an immaculate condition of constant readiness a portion of the sick bay, where the old operating table has been set up is being used for these cases. This arrangement has the fault of being too intimately associated with bed patients. A canvas screen is to be made which will wall off this section and isolate it to that extent. In December the outboard section of the examining room was curtained off, an adjustable wall bracket light installed, and a glass shelf set up with the necessary instruments and medicines for the better care of eye, ear, nose, and throat cases. This space also provides a more suitable place for the private examination of officers and men.

*U. S. S. Foote*.—Battle and dressing stations are maintained in the wardroom. Officers' mess attendants have been instructed in the transportation of the wounded by litter or by the one-man method. Men of the crew have been instructed as to first-aid treatment in connection with gunshot wounds or injuries incident to target practice or actual combat. One man among the crew has been instructed, from time to time, in first-aid methods and procedures who will act as assistant to the chief pharmacist's mate in time of emergency.

*U. S. S. Mayflower*.—Most of the recruits who have joined in the past six months have been boys of poor physical development. Many have manifested incapacity for adjustment to naval life and discipline. Strict adherence to the prescribed physical standards at recruiting stations and to the full prewar training period are suggested.

*U. S. S. Nevada.*—The average complement for the year 1919 was 61 officers and 1,048 enlisted men.

The health of the personnel on board has been excellent during the period covered by this report. There has been no outbreak of epidemic disease and sporadic cases of contagious ailments have been promptly isolated and removed to the hospital. The few cases of this nature which developed have been traced to exposure while on liberty.

The number of hospital corpsmen assigned to the ship at present is not enough to fill requirements to the best advantage. The time for study is reduced by the necessary routine duties, especially when short handed. In general the hospital corpsmen are capable and efficient according to the extent of their experience and knowledge. The course of instruction as outlined consists of practical training, lectures, quizzing, drills, and demonstrations, based largely on the Handy Book.

*U. S. S. Niagara.*—On October 25, ten days after arrival at Tampico, Mexico, an epidemic of malaria occurred. The ship arrived at Tampico during the height of the malarial season (August to December), was unscreened, and practically everyone aboard was repeatedly bitten by mosquitoes. The predominating mosquito was the anopheline, and the majority of them were infected with the malarial parasite. The ship was ordered to Tampico very suddenly, and to completely screen all ports, hatches, etc., by the ship's force required some little time. Practically all sickness since this time has been a sequel to this epidemic, many relapses occurring in spite of intensive quinine therapy. The predominating parasite is the malignant tertian, although there is often mixed infection, both malignant and benign tertian parasites being found. The treatment has been as follows:

Thorough purgation with calomel and magnesium sulphate or sodium phosphate.

Quinine gr. x q. i. d. by mouth till fever free 5 days.

Quinine gr. x b. i. d. for 10 days.

Quinine gr. x daily for 20 days.

Quinine gr. v daily for 40 days.

In addition to the above, the chlorhydrosulphate has been given intravenously and intramuscularly (gr. xv in  $\frac{1}{2}$  ounce of water) in those cases showing marked gastric symptoms or other pernicious manifestations.

It would be advisable for ships stationed at Tampico during the malarial season to be thoroughly screened before coming south and to carry sufficient quinine to allow daily prophylaxis of from 5 to 10 grains. This ship had on board only the regular allowance, and it was very hard to obtain locally sufficient quinine, so prophylaxis was not attempted.

From November 5 to November 19 we were in Vera Cruz, where there were no mosquitoes, and the majority of our cases recovered during this period. A large supply of quinine was also obtained and daily prophylaxis started upon our return to Tampico. At present practically all cases admitted are recurrences due to some unusual exposure or fatigue. There have been no deaths, but quite a number of cases of the bilious remittent type have occurred. These are the cases that tend to recur.

Medical and surgical supplies have been satisfactory, but the only instruments furnished are those contained in the instrument roll car-

ried on the supply table. All ships on detached duty carrying a medical officer should be furnished with an instrument chest. A major operation would be performed under difficulties with the instruments now furnished. On detached duty surgical cases can not be sent to a naval hospital or hospital ship, but must be handled aboard; hence the necessity for a complete operating room equipment notwithstanding the small complement usually carried.

*U. S. S. Panther.*—Venereal diseases have been very prevalent among the personnel of the *Panther* during the period covered by this report and her medical officer makes the following comment: The ship was in a foreign port for more than nine months of the year, and the number of prostitutes present was very great. Over-night liberty was granted to the men for the first five months of the year, and I believe that the necessary delay in carrying out prophylactic measures was largely responsible for the number of infections. With this in view, it was recommended and approved that no over-night liberty be granted and that all men having sexual intercourse be compelled to take venereal prophylaxis on returning from liberty. The efficacy of early prophylaxis was shown by a proportionate lowering of infections after exposure.

*U. S. S. Pennsylvania.*—The ship has been remarkably free from infectious diseases. Whenever there was a marked increase in cases of tonsillitis, it was usually found that the flaming of the scuttle butts and washing down the decks with cresol had been neglected. Improvement in the application of these sanitary measures was always effective in reducing the number of admissions.

The heating of the ship is as satisfactory as the present installation permits. At the time that the heat was turned on, the complement of the Hospital Corps consisted of one experienced man and three recruits or men of the same standard of efficiency. For the previous two years the heating had been under the medical department; but, on account of the shortage in personnel, it was found impossible to continue direct supervision.

The lack of space for doing dressings is constantly felt. The operating room can not be used for this purpose. At present this work is carried on in the sick bay, space being provided by the removal of two bunks on the starboard side. The provision of a compartment contiguous to the sick bay, fitted as a dressing room, should be kept in view for installation in future construction.

*U. S. S. Pittsburgh.*—Venereal disease has been exceedingly prevalent for the following reasons: (1) For the greater part of the year the ship has been in foreign countries, where venereal disease existed in abundance. (2) Since the ship has been in the Adriatic Sea practically the entire crew has had leave ranging from 48 hours to 15 days for the purpose of visiting Paris, Vienna, Venice, Trieste, Sarajevo, and Milan. Notwithstanding the fact that these men were warned of the danger of venereal disease and given prophylactic treatment to take with them, a very large percentage returned with venereal infection. (3) Since being in the Adriatic the ship has had many men transferred to her from various shore stations in Europe where no medical officer was present; a great many of these men were found to have venereal disease. Lately we have received many drafts of men from Brest, Paris, London, and certain ships in the vicinity of Brest. These men came overland and had leave in many places and

in one draft of 12 men 9 were found to have venereal infection. There were approximately 11,000 prophylactic treatments administered aboard ship; of this number about 98.5 per cent were efficient in preventing disease.

On the way from Gibraltar to Spalato, Dalmatia, July 11, there occurred about 32 cases of heat cramps and heat exhaustion, with one death. The contributing factors to such a large number of cases were: (1) the greater part of the fireroom force were new men and entirely unseasoned to their work; (2) the weather at the time was very hot; (3) the ship was making 17 knots per hour; (4) the fire-rooms were under ordinary draft. After a consultation between the commanding officer, chief engineer, and medical officer, the fire-rooms were put under assisted draft. Shortly after this the outside temperature became slightly cooler, and as the men grew more accustomed to their work no more cases developed.

*U. S. S. Rochester.*—There has been installed in each of the crew's heads a faucet and basin connected with salt-water flushing system; also a salt-water soap container. This gives each man a chance to wash his hands after using the heads. Over the basin is stenciled in large letters, "Wash your hands." Fresh-water supply to this faucet would be more sanitary but hardly practical where the amount of fresh water is limited. Paper towels, as used in the lavatories of hotels, would be a valuable addition, and it is recommended that such be supplied for use in the heads of ships, and that fixtures provided for the washing of hands be installed where not already present.

*U. S. S. Shawmut.*—While in the navy yard, Philadelphia, there occurred a series of cases of diarrhea of unknown origin. All articles of food which might have been responsible, such as milk, ice cream, fruits, and meats, were carefully investigated and absolved of all blame. By exclusion, only the drinking water remained liable to suspicion. All the water used at the time was obtained from the fresh-water line on the dock at Pier No. 3, from where it was fed to a small gravity tank to be consumed as required. A complete examination of this water at the naval hospital revealed the presence of colon bacilli in large numbers. The supply was immediately cut off and the water already aboard was chlorinated. For the preceding days on which the water was suspected but not proved guilty, all the water used in cooking was thoroughly boiled, and spring water was used in the scuttle butt. Other ships in the yard at the time were similarly affected, but the water had not been investigated. Following a report from this vessel, a thorough investigation ensued and about 10 days later the water was again reported fit for use. The diarrhea was important on account of the many persons attacked rather than because of the severity of the cases, and no one was admitted to the sick list.

The medical officer holds that more consideration might be given the personnel of the ship at the expense of technical requirements and military standards. Sailing dates and schedules could be made subsidiary to hygienic demands without detracting from the efficiency of the ship as a unit. It is true that a battleship is essentially a fighting organization, but it is also just as true that more harm can result in the immediate future from an overcrowded compartment,

an incompleated ventilating job, a poor dish-washing system, than from the excessive consumption of fuel, barnacles on the ship's bottom, or the absence of the awe inspiring "E" on the turret or stack.

#### UNITED STATES NAVAL FORCES IN EUROPE.

*Medical report on United States naval forces, eastern Mediterranean, April 28, to January 1, 1920.*—The period embraced between the above dates has been one of varied activities for all ships and crews in these waters. The force itself has changed, increased and decreased, until but few of the original personnel remain, and with the exception of two submarine chasers, No. 96 and No. 338, none of the original vessels remain.

In February, 1919, Spalato, Dalmatia, was selected as the naval base in the zone patrolled and protected by the American forces, which consisted at that time of 6 submarine chasers, and destroyers and station ships, later augmented by the U. S. S. *Olympia*, and from 6 to 10 destroyers. On shore the force consisted of port officers and personnel, a medical officer, a supply officer, and enlisted personnel of varying number, located at Venice, Trieste, Spalato, Gravosa-Ragusa, Gallipoli, and Fiume. The naval personnel also handles the land wire communication service between Vienna, Trieste, Spalato, and Fiume, giving a large outlying district with enlisted personnel on independent duty, and a number of stations that must necessarily be supplied with stores and, from time to time, replacements of personnel.

Stores for 3,000 men for a period of six months were requisitioned by the former force medical officer, and later, broken lots of stores and transport outfits were received, which have, to date, amply supplied the needs of the force. A large store of Red Cross material from Cardiff and Paris furnished quantities of surplus material which gave the required supplies not only to our own forces, but also to the local hospitals such supplies as gauze, cotton, disinfectants, for which there was urgent need.

Spalato having been made the base for supplies, arrangements were made to store medical supplies and a working dispensary ashore was equipped which, at the time of closing, was treating on an average from 10 to 20 cases daily. This number was rapidly increasing. A tent camp for convalescent cases from both hospital and ship had been established on high ground, equipped with showers and modern toilet and urinal, and this relieved the congestion of both the ship's sick bay and shore hospital, with considerable benefit to patients as well. A portable dental outfit was used to establish a dental office and not only served for the enlisted personnel but also for a number of native cases. Hospital facilities for officers in serious cases were obtained at a private sanatorium; for men at the local hospital, an old institution of 200-bed capacity.

Both these institutions were conducted by Dr. Jaksa Racic, a Jugo-Slav, and a well-equipped X-ray laboratory, operating in conjunction with the sanatorium, gave much assistance in many cases. The medical officers attached to the force owe much to Dr. Racic for his kindly aid and advice, as he is an exceptionally well equipped man, a graduate of the Vienna schools, and uses modern apparatus



and technique. With his thirty years of practice in both medicine and surgery, his opinion was always of marked value.

During the month of May a general clean-up of the town was inaugurated by the force commander, and much was done to promote a more sanitary condition. Old public urinals were closed and cleaned, and new ones installed; garbage was removed from back streets. The almost impassable alleys, courts, and honeycombed walls of the old part of town, for a time at least, presented a more attractive appearance. New bathhouses were opened, and the public profited greatly by the advice and effort aiming at some organized procedure.

Restricted hours of liberty, the establishment of prophylactic stations at convenient points ashore, instruction of hospital corpsmen, and the detailing of conscientious men to these stations operated to partially control venereal infection. Leave parties had a hospital corpsman detailed to accompany them with necessary equipment and individuals were supplied with means of protection. Knights of Columbus, Red Cross, and Young Men's Christian Association lent their aid, but, without exception, a fairly large percentage of exposures develop infections, and in transfer from place to place by trains or steamers frequently arrive at their final destination in a pitiful mental and physical condition from either gonorrheal or syphilitic infection, in many cases, both. The supply of salvarsan, most of which came within the series ordered destroyed by the Bureau of Medicine and Surgery, gave such vicious reactions as to discourage its use prior to the receipt of instructions, and to replace this immediately, owing to necessity of active treatment other than mercury, a supply of "Billon," the French preparation, was obtained, and, without any exception whatsoever, has given entirely satisfactory results. Wassermann's or other blood reactions have, to date, been obtained at laboratories ashore, primarily at Trieste, later at Spalato, and soon the medical department of the U. S. S. *Pittsburgh* will be able to do the necessary work on board.

A further step taken to prevent infection was a general inspection of all prostitutes. Those infected were sent to a venereal detention hospital, partly military, partly civil, in Spalato, in charge of an ex-military medical officer. The city authorities cooperated well in this, and aided very greatly in removing infected women from the various houses of prostitution about the town, until it was the clandestine prostitute who furnished the greatest source of trouble.

The two Austrian battleships, *Radetzky* and *Zrinyi*, have since their arrival in Castelli Bay, Spalato, been manned by forces of our officers and men, living under rather hard conditions, which have necessitated frequent changes and replacements. At the present time the general sanitary conditions are fair, food good, and general health excellent. A medical officer and chief pharmacist's mate, with three pharmacist's mates of lower rating, are attached to the present nucleus crews of these ships, which, together with the submarine chasers and station destroyer, constitute the entire naval force on duty in Dalmatia at present.

Leave parties were organized and leave to individuals has been granted whenever the situation and conditions under which the force operates permitted, and day trips to the Piave battle front, conducted by the chaplains and Y. M. C. A. officials, Sunday trips

to various islands, motor parties, baseball and football, together with swimming and tennis in season, have maintained the personnel in a more than good physical condition. More than a month's stay in Venice, Italy, added much to the general contentment.

No disease in epidemic form has manifested itself in the force. Three cases of diphtheria, mild influenza, a mild form of enteritis from poisoning by old potatoes, tonsillitis, together with the usual run of colds, have formed the chief causes for admission. Mild "three-day fever" is generally present here, variously diagnosed as influenza, malaria, occasionally typhus in severe onsets. It is most probably the pappataci fever of this coast, dengue-like in its symptoms, except for severity, absence of rash, and three-day duration. There was one case of continued fever that from the charted temperature ran a course very suggestive of mild typhoid. Among the native population and foreign prisoners of war, with extension in most locations to the civil population, typhus ran riot through lower Italy and Serbia during the spring, summer, and autumn, with a high mortality.

In Spalato a threatened epidemic of diphtheria and scarlet fever in November necessitated the closure of schools and stopping of liberty for a period of several weeks. Typhoid is also present. Daily reports were received and infected areas patrolled. A fresh supply of antitoxin for the force was obtained from the Italian laboratories at Milan, and distributed to the various vessels. The supply of near-limit date was used by the city health officers to immunize exposures and treat actual cases.

The medical officers of the force have been detailed to various duties, viz, with port officers at Ragusa, Spalato, and Trieste. One lieutenant, Medical Corps, was loaned to the Food Mission, and did excellent work in establishing the food kitchens for child-feeding in Montenegro.

At the present time Lieutenant John B. Bostick, Medical Corps, United States Navy, is engaged in locating and arranging to disinter United States Navy and Marine Corps dead in Italy, Dalmatia, Austria, Hungary, Corfu, and Greece. Incidentally, this officer has acquired a sufficient acquaintance with the Italian language to be of assistance to him in this undertaking.

The hospital corpsmen detailed with the force have, without exception, performed their duties worthily, and deserve credit for the intelligent carrying out of orders and instructions given.

It has been noted that a custom on destroyers which may or may not operate to the best interest of all concerned is the detail of the chief pharmacist's mate as commissary steward and at times as mail orderly. While no specific incident has come to light that gives cause for a suggestion to change this, it has been noted that some of the men so detailed are dissatisfied because of the time required to properly handle the extra detail; others are apparently satisfied.

As a matter of general interest it has been noted that tuberculosis in all localities is markedly on the increase. Infantile mortality is usually not far from 60 per cent from depletion and scorbutic disorders, which are general. The establishment of chains of food kitchens by various relief organizations has done an immense amount of good in the majority of instances.

## CIRCULAR LETTER ISSUED TO ALL SHIPS OF THE FORCE.

APRIL 14, 1919.

Instructions to stewards and for the commissary department; and precautions to be taken with foodstuffs obtained ashore in Spalato, Dalmatia.

1. Fresh fruits and vegetables obtained ashore in this port may carry dysentery and echinococcus cyst infections. To keep from disseminating these infections aboard ship the following precautions will be observed:

(a) Fresh fruit will be washed in running salt water for five minutes; rinsed thoroughly in a 1-1000 formalin solution, and rewashed in fresh water until no trace or odor of formalin remains.

(b) No apples will be bought ashore.

(c) No milk will be obtained ashore.

(d) All vegetables obtained ashore will be cooked, not served green. This, of course, includes lettuce, onions, etc.

2. All stewards will, immediately after their arrival on board with the marketing, proceed to the sick bay, where they will wash the fruits and vegetables under the supervision of the hospital corpsman, who will keep a permanent record of the above.

3. Hospital corpsmen will keep a record of those messes drawing the solution, and in case any mess fails to draw it, he will notify the officer of the deck, who will see that the delinquent does draw it.

*U. S. S. Biddle.*—The general health of the crew has been good. Prophylactic measures have materially lessened the number of venereal infections. In Constantinople the percentage of venereal disease is unusually high, due to the steady influx of foreigners in recent years. Prostitution, both public and clandestine, is common. Attempts have been made by the local health officials to hospitalize all venereal cases. It would seem that their attempts have been futile.

In the early autumn bubonic plague made its appearance. The average mortality was about 36 per cent. This figure is low in comparison with the figures of other years. Most of the persons infected were of the poor native population and dwelt in the most insanitary sections of the city. Men of the United States forces were barred from the infected districts. Typhus fever is prevalent. During September and October cholera and malaria were prevalent in the majority of Black Sea ports visited. Bubonic plague was present in light epidemic form in Beirut and other Syrian cities.

*U. S. S. Birmingham.*—It has been found that most of the cases of measles and mumps have occurred in recruits who were sent to the ship without having been placed in detention at training stations.

A large number of venereal cases were contracted early in the year while this ship was stationed at Venice, Italy, and Fiume. There was also a considerable number of venereal cases contracted by men on leave shortly after the ship arrived in the United States. This might be attributed to the fact that prophylactic treatment was not properly used or neglected entirely. The crew has been instructed fully in regard to the use of prophylactic treatment for venereal disease and has been warned about results of illicit sexual intercourse. At the present time the venereal list is very small and has been so for some time. A prophylactic station is maintained and is accessible at all times. A hospital corpsman is in charge of the station and keeps a record of all treatments.

It is recommended that, whenever practicable, recruits be kept in training stations where antityphoid inoculations and cowpox vaccinations should be completed and accurate record of same be made in health record. Also the matter of personal hygiene should be

forcibly impressed upon the recruit and he should have thorough instruction along these lines.

There seems to have been a decrease in cases of venereal disease since nation-wide prohibition became effective—however the campaign against this evil should be kept up earnestly.

*U. S. S. Cole.*—The general health of the crew has been excellent. Many of the men have been infected with venereal disease, in spite of the fact that prophylaxis has been rigidly enforced. This is probably due to the fact that a number of them do not return to the ship until many hours after exposure, and also because there are so many infected women in the ports we have been visiting.

During the month of September the officers and crew were innoculated with cholera vaccine. This vaccine was procured from the Turkish laboratory in Constantinople.

On account of the prevalence of smallpox in the ports we have been visiting, all members of the crew who had not had a successful vaccination within the last year were revaccinated.

During the month of September while cruising in the Black Sea two cases of pappataci fever were reported. No new cases have appeared since.

*U. S. S. Galveston.*—Since the arrival of this vessel at Constantinople, Turkey, July 14, 1919, she has been acting as station ship. During this period there have been from four to six destroyers, basing on this, which required medical assistance and supplies. Owing to difficulties of transportation only serious cases and major operative cases have been sent to one of the several British military hospitals.

Cholera was present during the summer in a number of Black Sea ports and while sporadic cases occurred in Constantinople the disease at no time became general. The entire complement of the ship was, however, vaccinated against cholera.

Bubonic plague made its appearance in Constantinople early in October. Fifty-three cases with 19 deaths have occurred. This gives an average mortality of 36 per cent. The infection was confined to the poorer classes of the native population. In addition to the usual methods directed toward the destruction of rats, anti-plague vaccination has been extensively practiced, especially in the vicinity of the infected areas. There have been no cases reported since December 17, 1919. All persons in the naval service whose duties took them into the infected districts were vaccinated.

Typhus fever is present among the native population, four or five cases being reported each week. The mortality is very low.

The venereal rate has been particularly high in spite of every effort to limit it. Basic economic conditions are such that many young girls are forced into a life of prostitution. The city, already disorganized by the war, has for more than a year been occupied by troops of the various allies. In addition to the regularly segregated and more or less controlled districts there are numerous cheap dance and beer halls that are virtually brothels of a very low order. As in most European cities there are many clandestine prostitutes who complicate the question of control. An effort is made to hospitalize infected women but the work is left to the Turkish authorities, who are without sufficient funds and facilities to carry out effective meas-

ures. All of these things considered it is not remarkable that the various venereal diseases are very prevalent. Available information indicates that the venereal rate among the troops of other nations has been excessive.

Apart from venereal diseases the general health of the crew of this vessel has been excellent.

The manger is used by the deck force for bathing and as this space is not well heated there is a tendency on the part of the crew to bathe less frequently in cold weather. A wash room should be provided for the deck force on ships of this type.

Familiarity with the latest destroyers leads the writer to believe that it might be possible to apply the fixed standing bunk principle to larger ships with consequent elimination of the hammock and its many objectionable features.

*U. S. S. Leonidas.*—The ship's allowance of medical, surgical, and dental supplies is quite adequate and the quality of supplies furnished is satisfactory. Enough supplies to care for the entire flotilla, of which this ship is tender, are kept on hand at all times to replenish the supplies of any destroyer going on detached duty away from the base. It is suggested that articles such as cotton and filter paper be packed in waterproof boxes so as to insure against loss should the box be exposed to the rain and mist.

The sick bay is located in the forward part of the ship on the berth deck and has a capacity of 2,011 cubic feet of air. Twelve bunks of the standard Navy type are secured to the bulkheads. They are equipped with good springs and mattresses and are quite comfortable. The sick bay has 5 port holes and adequate electric lighting. The steam heat supplied through radiators provides a satisfactory temperature at all time. Ventilation is obtained from the five port holes and the adjoining compartments.

*Austrian cruiser Radetzky.*—This vessel and her sister ship, the *Zrinyi*, commissioned in the Austro-Hungarian service in 1910, would be rated third-class ships in our Navy. They are in the custody of the United States and manned by 11 officers and 97 men of our service. The sick bay is well arranged and affords admirable facilities for major operations. It is well lighted and ventilated, accommodates 14 patients, and has running water, toilet, bath, etc.

The three battle stations used by the Austro-Hungarians have been adopted as such in toto. At each of these stations all materials and supplies are housed in one very large metal fireproof locker, below decks inside of armor. A quantity of dressings, splints, etc., sufficient for the care of 150 men is at each dressing station.

In our personnel on the *Radetzky* is a patient whose case is a striking commentary in recruiting in war time. After having been rejected 17 times during the war for a "bad heart," he was accepted only to be the subject of a board of survey a few months later. This man was found to have a marked mitral incompetency and a beginning deficiency of the myocardium. The myocarditis was undoubtedly aggravated by an injury received from a serious fall and a recent attack of diphtheria. The development of this heart case was watched with great interest and proved conclusively that the man should never have been admitted to the Navy no matter how badly men may have been needed at that time.

## UNITED STATES PACIFIC FLEET.

During the period of the World War whose activities as such ended with the signing of the armistice in November, 1918, a fleet in the Pacific practically ceased to exist and not until July 1, 1919, was this unit again formed.

The following statistics are far from satisfactory, do not represent the entire fleet for the full period, and deal only in general terms, for during the first few months after organization of the fleet the reports and returns were received from but few vessels, due in all probability to the uncertainty of organization and lack of definite knowledge of the data and forms to be submitted. Another reason, and a very important one, is noncompliance with the printed requirements in the Naval Instructions and Regulations, Manual for the Medical Department, United States Navy, and Pacific Fleet Routine Orders and Letters. There is evidence to indicate neglect of responsibility and lack of good judgment in the filling out of even the printed forms. Corrective measures are, however, being applied with satisfactory results.

*Admissions and readmissions.*

Fleet, 1919.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
Number of ships reporting.....	41	46	43	48	81	125	.....
Average complement.....	20,864	20,302	17,373	16,619	17,494	21,494	19,022
Diseases.....	894	1,115	920	998	949	1,028	5,924
Injuries.....	162	128	97	135	94	135	751
Total.....	1,056	1,243	1,017	1,133	1,043	1,163	6,675
Annual rate per 1,000.....	607	734	702	636	715	707	709
Sick days.....	3,615	5,189	4,661	3,865	3,549	4,894	25,523
Daily average of patients.....	116.61	167.38	155.36	124.67	118.30	141.74	137.35

Seven deaths from injuries were reported, but none from diseases. Five were invalided from the service. Twelve hundred and seventy-nine were transferred to hospitals or other stations for continued treatment.

While the shortage of medical department personnel is not so apparent, yet it is intensified by the fact that a greater number of the hospital corpsmen and quite a few medical officers are relatively new to the service; therefore, the full mission of the Medical Department is not felt, owing to inexperience and lack of training.

During the fitting out of the fleet and for the months of October, November, and December a number of recruits were received to take the places of the men demobilized or whose enlistments had expired. Many of those received were young and decidedly below the general physical requirements of the service. This, coupled with the fact that in many cases the recruits had not undergone the usual detention periods at training stations, has no doubt been responsible for not a few communicable diseases; however, all threatened epidemics of a serious nature were promptly met and controlled by the medical officers of the respective ships.

*Admissions and readmissions.*

Diseases.	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
Cerebro-spinal fever.....			1				
Chicken pox.....				2	2	2	10
Dengue.....				3	4	1	8
Diphtheria.....	1	4		1	1	1	8
Influenza.....	24	14	4	15	13	20	90
Malaria.....	8	9	2	3	2	5	29
Measles.....	2	6	33	50	8		99
Measles (German).....		1			2	3	6
Mumps.....	9	67	88	62	72	41	339
Pneumonia (all).....	7	6	3	4	6	5	27
Scarlet fever.....	2	5	10	6	9	3	35
Tuberculosis (all).....		4	2	2	2	4	14
Veneral:							
Chancroidal infections.....	58	166	77	29	28	37	395
Gonococcus infections.....	110	120	86	95	82	134	627
Syphilis.....	25	24	28	21	21	13	132

The general sanitary condition of the fleet may be said to be satisfactory. All disabilities reported have been spread over the entire station and not confined to any one locality. The vessels at the navy yard, Puget Sound, show a higher admission rate for mumps, measles, and scarlet fever than any other group, but all groups have reported these same disabilities. The prominent and outstanding disabilities that occur most frequently and give rise to the higher admission rates are diseases of the respiratory tract, tonsillitis, and bronchitis with their complications taking first place.

The incidence of venereal diseases has been relatively low, considering the fact that the greater portion of the fleet has been continually in port with unrestricted leave opportunities. Representatives of the United States Interdepartmental Social Hygiene Board have corresponded with the ships, asked for and received cooperation. The extent of their efforts, however, has not been made known, certainly it has had no effect on the venereal admission rate up to the present time. In October a motion-picture film, "Cleared for Action," was received from the Sixth Division, Bureau of Navigation, and was shown on the vessels based on San Pedro and is now being circulated in the ships at Mare Island and Puget Sound. Comments on the picture and its effects on the crew are being forwarded to the department as received. Two vessels report that following the showing of the picture there were a number of men reporting for examination. Wassermann tests were requested and a renewed interest was exhibited in venereal prophylaxis. A majority of the ships, however, reported merely on the moral features, some approving and others questioning the method of moral suasion.

Inspections were conducted on the *New Mexico*, *Mississippi*, *Idaho*, and *Texas*. The three former ships were found to be well organized. All required station bills were properly prepared, the personnel was thoroughly instructed, and all spaces occupied by the medical department of these vessels were clean and orderly. The *Texas* was not so well organized, station bills were not properly prepared and posted, and the spaces occupied by the medical department were not found to be clean, but corrective measures were pointed out and are now being applied. On all of the above-named vessels the present operation of the combined system of heating and ventilating is reported as being unsatisfactory, and difficulty is

experienced in properly regulating the heat, as it often happens that from the same source of supply (the same blower) one portion of the ship is overheated while another is poorly cared for.

It has been observed and comment is made on the fact that the present machinery installed on vessels for the cleaning and sterilizing of mess gear does not have the capacity to properly handle the situation, and, as a consequence, dishes are not thoroughly cleaned or sterilized, and much time is consumed at each meal period. There is installed on the U. S. S. *New Mexico* an apparatus which meets all time and sanitary demands, permits the proper heating and changing of water for each separate lot of dishes, and at the same time requires but about one and a half hours' labor to perform the work for the entire crew. It is recommended that a similar apparatus be installed on other vessels of this fleet.

The method of supplying drinking water to the firerooms is generally unsatisfactory. It is believed that a pipe might be led from the scuttle butt or ice-making plant, and so insulated that cool water could be available at all times. The present method in use on many of the larger ships, of carrying drinking water to firerooms in buckets, results in considerable lost labor besides being insanitary.

On all vessels inspected the condition of the mess tables for the crew was far from satisfactory. The fault is not one due to neglect on the part of the personnel caring for them, but to defective material and method of construction. When relatively new the joints and seams of the boards are tight, but after use, through scrubbing, water collects in the seams, and in a short time, by the process of wetting and drying, they are widely open, allowing accumulation of food particles which are very difficult to remove with the ordinary care given after each meal. These tables, with their open seams, are insanitary, and when stowed overhead are unsightly as well. It is believed that a suitable sheet-metal table with rolled edges could be manufactured that would be thoroughly sanitary from all standpoints, and it is thought that there would be little if any difference in either weight or cost. The cleanliness and appearance of such a table is not to be questioned, and when stowed overhead, with the bottoms painted in keeping with the other color effect of the compartment, they would have a neat appearance.

*U. S. S. Beaver*—The *Beaver* has a gross tonnage of about 6,000 tons and has been tender for submarines since her first commissioning, October 1, 1918.

There are at present 372 officers and enlisted men attached to the *Beaver*. From a medical and sanitary standpoint, however, it is necessary to add to these the officers and enlisted personnel of the six submarines, which, with the *Beaver*, make up the Fourteenth Submarine Division. These submarines, the *R-15*, *R-16*, *R-17*, *R-18*, *R-19*, and *R-20* have a personnel of 203 officers and men. The total complement of the division therefore amounts to 575 officers and men.

An interesting case of poisoning by oil of eucalyptol occurred. The patient was brought to sick bay in a state of collapse, pulse weak and thready, pupils widely dilated, extremities cold, signs of having recently vomited. An empty ounce-bottle of oil of eucalyptol was found in his bunk and the patient stated later that he had bought it



ashore and taken the entire amount for a cold. He was given a hypodermic of atropine and morphine, heat was applied and he made a speedy recovery.

Two deaths occurred on the *Beaver*. While in San Diego one of the crew was lost overboard and the body was not recovered for several days. A board of investigation decided that the deceased had jumped overboard with suicidal intent. The other death was that of a chief gunner's mate who fainted while at work in the torpedo shop and died before anything could be done for him. An autopsy performed shortly after showed an aneurism of the ascending aorta which had ruptured. He had never shown any signs of this condition and had had a clear health record.

The submarines furnished a comparatively large number of ear and stomach cases. In a large number of cases a mild catarrhal otitis media with a thickening of the ear drum was found, most often in men who had served some years in submarines. There was usually the history of a gradual onset of deafness dating from their first entrance into submarine service and of pain which varied from a slight, dull, chronic ache to an acute exacerbation brought on by long submerging. It was found necessary to recommend the removal of four men from submarine duty on account of this ear trouble. Another condition causing trouble on submarines, especially while cruising and away from the tender or dock, is that of intestinal stasis brought on by lack of exercise, poor ventilation, and improperly cooked food. At its best, submarine service is very uncomfortable, and while it is almost impossible to remedy the ventilation and exercise question while on a long cruise, yet much could be done through cooks and food to keep up the morale. When to the natural discomfort of the submarine there is added an inexperienced and seasick cook, the matter of proper food becomes a serious problem.

Stomach trouble seemed to be more prevalent among the men working in the engine room. Analysis of stomach contents after administering test meals invariably showed a lack of free hydrochloric acid and considerable relief was afforded by giving the dilute acid in small doses. It is a question whether this lack of acid results from submarine duty or from the common practice of partaking of large quantities of sodium bicarbonate.

The recruiting experience of the *Beaver* has been interesting. During the past six months 178 applicants have been examined, 31 rejected for various causes and 147 enlisted. Most of the recruits came from Honolulu and Hilo and, with the exception of three, consisted of Hawaiians and Filipinos. The rather low percentage of rejections is due to the fact that the greater portion of the recruits had seen service in the Army and were in excellent physical condition. A detention camp was established ashore and the new recruits were isolated for three weeks, vaccinated, and given their typhoid prophylaxis.

It would be advisable, to install a shower on the decks of the submarines for use while away from the docks or tender, as otherwise the facilities for bathing are very poor. The heads in the submarines are situated in the engine room which is perhaps the most suitable place for them but they are very uncomfortable. Some of the boats have adopted a scheme which has almost put into complete disuse

the regular head when on cruises. This consists of a hinged bucket with detachable wooden seat which is attached to the deck railing of the submarine by a rope. After its use, the bucket is thrown overboard, the hinging allowing the bucket to be rapidly cleaned by the sea water, after which it is hauled on board again. While not comfortable, it at least helps in keeping the interior of the boat free from disagreeable odors. The ventilation of the forward battery compartments and torpedo compartments could be improved by increasing the size of the air vent from the conning tower to the torpedo compartment. A refrigerating system would be a welcome addition as more fresh food could be carried and more palatable drinking water could be obtained.

The ship's allowance of medical, surgical, and dental supplies is sufficient and of a satisfactory quality with few exceptions. The mustard plasters supplied have been defective. Whether this is due to climatic conditions is not known but as they come in sealed, airtight receptacles, they should not be affected. It is suggested that tincture of larkspur or larkspur seed be added to the supply table as a cleaner and safer remedy for pediculi than the mercurial preparations. Also it is suggested that another vermifuge, such as aspidium, be added. The dental officer suggests the addition to the supply table of an instrument called "The Little Giant Post Puller."

The only recommendation offered is that there should be a *definite time limit set for active submarine service both for officers and men*. Service for more than four years at one stretch seems to impair the physical condition of the majority of the personnel, this being especially noticeable as regards ears and eyes.

*U. S. S. Breese*.—The medical and surgical supplies allowed by the supply table have proved to be ample save for one item. A small dental case should be issued to ships of this class, as quite frequently men who have teeth that need to be extracted neglect to report until the ship is at sea. Having no forceps, the man must suffer until the ship arrives in port.

*U. S. S. Chicago*.—As a whole the health of the ever-changing crew of this vessel has been remarkably good when considering that the ship has had duty in every climate known to the seafaring man during the past year from Newfoundland to Panama, while a protracted stay in Central America at a yellow-fever-infested port, tested the physical endurance of the men to the limit.

At Amapala, Honduras, an epidemic of yellow fever was encountered, and two members of the crew were so unfortunate as to contract the disease. The ship was quarantined and that part of the vessel in which a few mosquitoes of the anopheles and culex types were found was fumigated (no *Stegomyia calopus* found aboard). All recognized methods of prevention, even to immunizing about 70 members of the personnel with Noguchi's killed culture of leptospira icteroides, were instituted. One of the yellow-fever cases was treated with Noguchi's antileptospira icteroides serum and the patient seemed to be benefited by the treatment. Both cases recovered. They were treated and isolated in the ship's sick bay without further dissemination of the disease among the crew.

*U. S. S. Cleveland*.—The general health of the ship's company has been very good for the past year. This vessel has visited 16 different ports, 14 of which have been foreign (Cristobal and Balboa giving

access to Colon and Panama City), but have suffered very little from the various infections common to these ports. Where yellow fever was present, the liberty of the ship's company was limited, by order of the commanding officer, to the afternoon, no men being permitted to remain ashore after sunset. The same order was carried out as far as practicable in ports where malaria was common. Quinine was administered as a prophylactic measure when men were necessarily exposed to malarial infection. The men were warned of the presence of the various tropical diseases in the Central American ports visited. They were also advised of the necessity of personal hygiene and discretion in eating and of the ill effects caused by the use of alcohol in the Tropics.

The most prominent cause of men reporting at the sick bay was physical inability to carry out the duties assigned them. This was especially true of the men who have been enlisted since July. Their physical standard is much lower than that of the men previously enlisted. In most cases the men are very young and not fully developed. No doubt they will improve when the ship is relieved from tropical duty.

Exercises of various forms, such as rowing, swimming, baseball, and hunting, have been encouraged and have done much to improve the efficiency of the crew.

*U. S. S. Cuyama.*—There have been no epidemics of contagious diseases aboard, due to few exposures to infectious influences and the immediate isolation of any patients having contagious diseases or the symptoms of same. The venereal rate was high up to November 10, there being 27 admissions, with an annual rate of 216 per 1,000. It was the routine previous to that time to administer prophylaxis in the dispensary at 8 o'clock in the morning under the supervision of the pharmacist's mate. It can be seen, therefore, that men exposed the night before were not getting prophylaxis soon enough, rarely within eight hours after exposure, so the following system, which had previously proved very satisfactory on the *U. S. S. Vicksburg*, was inaugurated by the present medical officer. The entire crew was instructed in small groups regarding the efficacy of prophylaxis if taken early and warned that its value decreased with every hour after exposure and that it prevented venereal diseases only in a small percentage of cases when taken longer than six hours after intercourse. They were also carefully instructed as to the proper method of taking prophylaxis. Venereal lockers were installed in each head containing protargol, calomel ointment, and syringes kept in antiseptic solution, together with written instructions as to the proper method of taking the prophylaxis. In this way prophylaxis was available day or night, and men who had exposed themselves and returned to the ship at midnight were enabled to receive prophylaxis within a very short time after exposure.

A careful record of all exposures is kept, together with the time of exposure and the time of prophylaxis in each case, and should a man go longer than six hours without prophylaxis he is warned that it must be taken earlier, and should he repeat the indiscretion it is recommended that his liberty be stopped at midnight for a definite period of time to impress upon him the necessity of early prophylaxis. Thus far one warning has been sufficient, and the cooperation received both from the commanding officer and the crew has been a great source of encouragement to the medical officer. Since this

system has been in vogue no infections have developed. As there is but one hospital corpsman attached, it is not feasible to keep a night watch, and it is believed that the above procedure will prove very satisfactory under the circumstances. The following chart shows conditions since inauguration of above system:

Number of exposures, 66.

Average time of prophylaxis after exposure, 2 hours 55 minutes.

Infections, none.

*U. S. S. Dent 116.*—Every man should be familiar with the fundamental principles of health, and possibly it would be judicious to have printed and distributed succinct booklets imparting such information and advice to all men in the service. At present the importance of daily calisthenics is not emphasized on destroyers, and athletics do not excite the keen interest required to maintain the high morale desired among the men.

*U. S. S. Denver.*—During nearly the whole period covered by this report the ship was cruising in tropical waters with very little inclement weather; consequently the crew lived most of the time above decks, so that the ventilation of the ship was very good and only a small number of respiratory diseases was reported. Venereal diseases were very prevalent in both South and Central American countries. Lectures on these diseases and frequent warnings to liberty parties were given, with apparently good results. Venereal prophylaxis was practiced, and the men were cautioned about the necessity for an early and careful prophylaxis. While the ship was anchored off Amapala there was a good deal of malaria, both benign and malignant tertian, among the natives, and later yellow fever broke out. There were about 12 or 14 cases of the latter disease in Amapala, and 2 cases developed aboard the *U. S. S. Chicago*. The majority of these cases were atypical, showing very little, if any, jaundice, but high fever and severe toxemia. The typical fever curve and Faget's law were manifested in the majority of cases. A Rockefeller commission on medical research work, consisting of three doctors, under the charge of Gen. Lyster, a retired medical officer of the United States Army, took charge of the situation in Amapala, establishing a well-screened hospital, ambulance, and sanitary parties for anti-mosquito-breeding measures. Gen. Lyster was using a vaccine and a serum made from cultures of the *leptospira icteroides*, discovered by Noguchi and believed to be the causative organism. The vaccine was used for prophylaxis and the serum was used in the treatment of this disease. Apparently good results were obtained, as there were only two deaths reported in all, and these were cases seen and treated rather late in the course of the disease. During this epidemic the *Denver* was anchored about a half mile from the town. There was no liberty except to a small uninhabited island about 4 or 5 miles from Amapala. Those who had urgent business demands in Amapala were allowed to visit the town during the daytime and before sunset, and used leggings, gloves, and gauze head screens. Before yellow fever broke out in Amapala two cases of malignant tertian malaria developed on the *Denver*. Measures were taken aboard to break up all possible breeding places for mosquitoes, and each member of the Hospital Corps was detailed to make daily inspections and reports on a definite portion of the ship. These measures eliminated mosquitoes aboard.

*U. S. S. Idaho.*—A serious defect in the ventilating system lies in the location of intakes on the forecastle. The *U. S. S. New Mexico* has reported serious results from the necessity for battening down all forecastle intakes while crossing the Atlantic last winter, the air becoming so foul below that it became necessary to abandon the sick bay and chief petty officers' quarters. It is strongly recommended that alterations be made to connect this system with an intake located on the superstructure, at least as an auxiliary means of supply, and that in future construction the intake be permanently located where it will be utilizable in all weather. Systems 26 and 27 also have intakes located on the upper deck between turrets No. 1 and No. 2, but are less important, supplying only storerooms and unused 5-inch handling rooms. The large air duct with intake forward of the foremast on the superstructure deck, which supplies all machinery spaces, seems to present a serious danger in battle, as the explosion of a gas shell in this locality would result in gassing the entire engineers' force on watch.

All spaces are lighted by mazda lamps. Lighting in crews' spaces, storerooms, and other compartments is adequate and satisfactory. In officers' rooms and offices the lighting is highly unsatisfactory, diametrically opposed to modern views of scientific lighting and ruinous to eyesight. In these localities desks are lighted by 40-watt lamps 12 inches above the desk. This, on white paper, makes a directly reflected glare into the eyes and causes intense ocular pain in a few minutes. All lights should be removed to suitable locations 48 inches above desks. This defect should be corrected at as early a date as possible on this ship and avoided in future construction.

The greatest drawback to a satisfactory general messing system aboard this ship lies in the service. While food is of excellent quality and generally well prepared, yet by the time it reaches the crew much of it is scarcely fit to eat, having been slopped onto plates by careless mess cooks and usually allowed to stand until it has reached a cold and clammy state, when it is neither appetizing nor digestible.

The cafeteria system of messing does away with the difficulties enumerated and possesses so many advantages that it is the method par excellence of rapidly, appetizingly, and economically feeding large numbers of men. It is recommended that the cafeteria system of messing be put into effect as early as possible.

The scullery is located on the main deck amidship between frames 62-65. It is equipped with dishwasher, drain boards, and racks. The dishwasher is wholly inadequate and unsatisfactory. It consists simply of two tanks each 21 by 22 by 23 inches in which dishes can be boiled. Such apparatus will accommodate only a few dishes at a time and *will not wash them*. It is now necessary to have dishes washed by hand and subsequently immersed in boiling water in these tanks for two minutes, which is inadequate for proper sterilization, but this is all the time which can be given with the present equipment. Knives, forks, and spoons are boiled for 10 minutes. It is recommended that a dish-washing machine of approved type be installed at the earliest possible date.

The conditions under which the *Idaho* has operated since commissioning call for a few special recommendations concerning clothing. As a result of the war the quality of practically all clothing has deteriorated and the price increased to such an extent as to make

proper upkeep a serious financial burden to the enlisted man. Clothing for enlisted men of the Navy should be made an allowance and issued *as necessary* in the same way as to men of the Marine Corps. The wearing of the sleeveless sweater should be authorized on liberty, as the climate of California rarely requires the carrying of a pea coat, yet is frequently too cold or damp at night to have sufficient protection given by cotton undershirt and jumper.

The sick bay is located on the second deck between frames 25-29. Four 12-inch ports on each side. Deck space, 1,039 square feet. Air space, cubic feet 8,312. Forced air supply, 1,600 cubic feet per minute through eight louvers 8.5 inches diameter. Air changed in 5.1 minutes. Berths, 24. There is 1,400 cubic feet per minute of exhaust ventilation through 4 louvers 9½ inches diameter. Lighting is adequate and satisfactory by 17 lights, 40-watt, and 2 standing lights. Heating is by the combined heating and ventilating system, augmented by 2 electric heaters. The combined system is even more objectionable in the sick bay than in other parts of the ship, as the sick bay is on the same system as chief petty officers' quarters and messroom and in heating these spaces the sick bay soon becomes overheated.

The sick bay is well ventilated, well lighted, well arranged, comfortable, and pleasing. Sheets hung on brass rods are at present being used as screens between berths pending the completion of transparent, celluloid substitute screens 24 by 48 inches, which are to be fitted between the upper half of berths to prevent droplet transmission. This type of screen is highly satisfactory, as it does not obstruct light, effectually prevents droplet transmission of cross infections, and is more sightly than fabric screens. Such installation is recommended in future construction.

The operating room is abaft the sick bay on the starboard side, 13 feet wide at forward side, 15 feet wide aft, and 11 feet fore and aft. There are two 12-inch ports. Air space is 1,680 cubic feet. Air is changed in 4.14 minutes by 2 louvers, 300 cubic feet per minute by supply, and 450 cubic feet per exhaust. Lighting by 2 lights on bulkheads and 12 in an oval over operating table is excellent. No accessory lighting is provided and the installation of 4 lights on an accessory storage battery circuit is recommended to provide light in case of failing of main circuit during operation.

In connection with the sick bay must be considered the location of the carpenter shop. This is situated between frames 37-42, and consequently in immediate proximity to the sick bay. The sheet-metal shop is operated in connection with the carpenter shop and the resulting din throughout the day is such as to seriously hamper the recovery of sick. It is recommended that the carpenter and sheet metal shops be moved to another location, preferably to frames 74-88 amidship, second deck, and the space now occupied by the carpenter shop used for berthing.

The complement of hospital corpsmen, when filled, is sufficient. The scarcity of older, experienced men in the corps at the present time is a serious handicap to efficiency, but every effort is being made to instruct men of lower ratings in their duties and qualify them for higher ratings. Hospital corpsmen almost without exception show interest in their work and are being indoctrinated with esprit de corps and the idea that men of the Hospital Corps must

be of exemplary character. Instruction of hospital corpsmen is carried out weekly as follows:

Monday; nursing and ward management, medical officer.

Tuesday; pharmacy and materia medica, chief pharmacist's mate.

Wednesday; anatomy and physiology, medical officer.

Thursday; operating-room technique, first aid and bandaging, medical officer.

Friday; chemistry and toxicology, chief pharmacist's mate.

Venereal diseases for the ship have run a low percentage except during the months of July and August, during which time the ship visited Rio de Janeiro, Brazil, carrying President-elect Epitacio Pessoa from New York. Liberty was granted daily for 15 days, no liberty parties being ashore after 2 a. m. During this period 1,585 men applied for venereal prophylaxis upon return from liberty. The number of hours after exposure at which prophylaxis was taken was recorded as follows:

	Per cent.		Per cent.
1 hour.....	6	11 hours.....	3
2 hours.....	10	12 hours.....	3
3 hours.....	10	13 hours.....	4
4 hours.....	3	14 hours.....	5
5 hours.....	6	15 hours.....	1
6 hours.....	6	16 hours.....	1
7 hours.....	10	17 hours.....	1
8 hours.....	18	18 hours.....	1
9 hours.....	6	19 hours.....	2
10 hours.....	3	20 hours.....	1

No cases were recorded after 20 hours.

There developed following exposure in Rio de Janeiro, Brazil, the following venereal diseases:

	Cases.
Chancroid.....	55
Gonococcus infection of urethra.....	32

Of those infected three admitted failure to take prophylaxis. Three cases diagnosed as chancroid subsequently developed syphilis from mixed infection. One syphilitic failed to take prophylaxis. Prophylaxis consequently failed to protect against chancroid in 3.27 per cent; against gonococcus infection of urethra in 2 per cent; against syphilis in 0.12 per cent of those exposed.

Rio de Janeiro is such a notoriously infected port that it is safe to assume that all admitted exposures were with infected women. A high degree of protection was consequently obtained by the method of prophylaxis employed. This method consisted of thorough washing of the penis with green soap and water followed by injection into the urethra and application to the glans and entire penis of 1-1000 mercuric cyanide in gum tragacanth jelly. Small glazed paper cones are prepared 2 inches long and 1 inch diameter at base, which are filled with mercuric cyanide—tragacanth jelly and the base folded over. When the applicant presents himself for prophylaxis he is required to wash thoroughly, the tip of the paper cone is then cut off with a scissors and he is instructed to insert the tip of the cone into the urethra and inject, by squeezing the cone, about 1 inch of the extruded jelly. The remainder of the jelly is thoroughly rubbed into the glans and penis. The injected jelly is distributed over the urethra by the subsequent massage of the glans in rubbing. All

treatments are administered under the supervision of a thoroughly instructed hospital corpsman. In addition to the high degree of protection obtained, this method has a decided advantage in furnishing an individual, clean means of application for each man. Men dislike to use syringes used by prior applicants even though washed and immersed in an antiseptic solution and with large liberty parties it is difficult to have a syringe prepared for each man. Further trial of this method of prophylaxis is recommended.

Attention is invited to a recommendation made to the Secretary of the Navy under date of October 27, 1919, concerning the abolition of brig sentences for offenses other than crimes. It is believed that the steps recommended would materially improve morale.

It is recommended that cleaning of living spaces and heads and management of the scullery be put directly under the medical officer, instead of the first lieutenant. This is in conformity with modern practice in Army posts and some naval shore stations. It places all responsibilities directly upon the department most concerned, relieves the first lieutenant of a class of work in which he is largely carrying out the recommendations of the medical officer, and consequently does away with much lost motion and gets quicker and more direct action on an important part of the ships routine.

*U. S. S. Melville.*—During the first part of 1919, a new complement was approved, as follows: One chief pharmacist's mate, two pharmacist's mates first class, two pharmacist's mates second class, and five pharmacist's mates third class. It has been shown by actual experience that this number is necessary to properly carry on the work, when operating as tender for the destroyer force. The average Hospital Corps complement for the year was 7.5 per month. On the date of this report the number of hospital corpsmen on board is one chief pharmacist's mate, one pharmacist's mate first class, and one pharmacist's mate second class, this number being totally inadequate to carry on the work properly. The large number of discharges among the enlisted personnel has been responsible for this shortage. The hospital corpsmen are attentive to duty. The unusual conditions prevailing in civil life, and the reports of lucrative positions awaiting discharged service men are responsible for the failure of many of these men to reenlist. The varied experience obtained on a ship of this type, tends to keep up interest and gives ample opportunity for advancement in rating.

*U. S. S. Mississippi.*—Report of incidence of venereal disease after a visit to Port of Spain, Trinidad, British West Indies: On March 22, the *Mississippi*, in company with three other vessels of the Atlantic Fleet, put in at Port of Spain, Trinidad, British West Indies, for a three-day stay. Liberty until 9.30 p. m. on the dock was granted daily to one-third of the crew. The men made the most of their liberty, and during the three days an average of between 100 and 150 men reported at the sick bay for prophylaxis upon returning aboard. The average time elapsing between the hour of exposure and the time of prophylaxis may be placed at from six to seven hours. The unusually large number of men reporting for prophylaxis rendered it apparent that there would probably be an increase in venereal cases, as there are always a number who are exposed and fail to take the treatment, and a large number who contract disease



even though prophylaxis is taken, due to the long period between exposure and treatment, because of the fact that the treatments must be given on board. The ships left Port of Spain on March 25 for Guantanamo Bay, Cuba. Venereal cases began appearing at sick call, and records show that there were admitted to the restricted list during the months of March and April, respectively, the following:

	Chaneroid infection.	Gonococcus infection.	Syphilis.
March.....	24	21	3
April.....	14	7	
Total.....	38	28	3

Of the above 69 cases, some 8 or 10 were readmissions, and hence should not be counted. More than half of those admitted to the restricted list were men who had failed to take prophylaxis upon returning aboard after liberty. The failure in other cases is attributed to a too protracted period between exposure and treatment, as great care was taken to insure good technic. On the 3rd of April an inspection of the entire ship's company was made, to insure that no venereal disease was being concealed. The men were handled at several stations by divisions and checked by their own officers and petty officers to insure that none escaped attention. Two or three cases were detected and were immediately placed under restriction and treatment. As an end result of the visit to Trinidad four cases of syphilis, with typical secondary symptoms, reported in late May and early June.

The scullery is the only institution connected with the commissary department on the ship that should be seriously considered for change and improvement. It is not enough that dishes be clean, but of vital importance that they be sterilized. Mess gear is washed by the mess cooks on the mess tables in the various compartments. This is not a good thing in the compartments, as the average mess cook is generally careless in the operation. Dishes are then carried to the scullery and held for the next setting of the tables. The capacity of the sterilizer is such that it is not possible to sterilize all the dishes more than once a day. This is 33½ per cent efficiency in sterilizing against infectious and contagious diseases. A modern dishwashing machine, operating with steam and water jets and a moving carriage, is the proper solution and should be installed. Such machines are on the market and will do the work of washing and sterilizing quickly and efficiently, washing with salt water and finishing with a dipping of fresh water.

All office desks and office work in the dispensary should be transferred to the surgeon's office. This office is ample for all office work. Office work and the number of men it necessitates is bound to detract from the efficiency of the pharmacist. From the presence of other hospital corpsmen in the room the drug dispenser is reluctant to take temporary leave and a nonrated man, just to accommodate, gives out medicine. The drug dispenser should be an efficient man, undisturbed in his work, and it is a mistake to put the office work in the room where he has to put up medicines. To remove the two

desks from the dispensary would leave ample space for a well equipped ship's laboratory, for which no space is now provided.

*U. S. S. New Mexico.*—During the return of this ship from France in February of this year, when heavy weather was experienced, the ventilation of the ship was thoroughly tested under sea conditions, and found extremely deficient. During practically the entire trip, covering a period of 12 days, all ventilation to the forward part of the ship, the supply for which is taken from the forecastle deck, was shut off, eliminating the sick bay, chief petty officers' quarters (where 70 men were berthed), and the berthing space of the crew, forward, from fresh air supply. The same conditions existed to a slightly less degree aft in officers' quarters and crews' berthing space, the supply for which is taken from the quarter-deck, as it was possible to occasionally open hatches.

The air in the spaces mentioned above, due to be supplied from ventilators on forecastle and quarter-deck, became extremely foul, making these spaces almost unlivable, and entailing much hardship on the occupants. The conditions in the sick bay were such as to necessitate the removal of serious cases to various parts of the superstructure, as it was impossible to keep them confined below.

Since this trip from France, additional air supply has been secured for the blower supplying the sick bay, and chief petty officers' quarters by running a metal supply trunk up along the forward part of No. 2 turret, to the height of about 12 feet. Openings have also been cut into No. 1 and No. 2 gun casemates from the supply openings forward, which will provide for a supply to the crews' berthing space, forward, from these casemates, when it is necessary to close the regular supply openings leading to the forecastle. Exhaust ventilation has also been installed in the after chief petty officers' quarters. With these provisions made, much improvement is noticeable, and under conditions similar at their worst, to those which existed on the return of the ship from France, the installed changes would certainly be greatly for the better.

During the war very high-class men were available for the Hospital Corps. Since general demobilization has occurred the class of men enlisting in the corps is, generally, not up to the former high standard, and considerable trouble has been encountered in the matter of discipline, lack of interest, etc. Hospital Corps instruction is held five days a week, on all subjects required. Many of the wire stretchers (Stokes) furnished are too lightly constructed, bending and breaking easily, and necessitating constant repair. They should be made of heavy, durable material, so as to stand the hard usage at general quarters, which they constantly experience.

*U. S. S. New York.*—Attention is invited to the fact that many ships are still using the Gates model of scuttle butt. The drinking terminals now in use are either the same or some modification of the originals introduced many years ago.

It has been definitely shown by United States Public Health Service reports and from other sources that this type, with an outlet giving a vertical fountain, is not a safe, sanitary, or strictly modern appliance. It is entirely probable that many cases of disease (mumps, tonsillitis, etc.) may be traced directly to this source in spite of efforts, by flaming or other means, to sterilize the terminals.

An appliance is in the market which does not allow the water to fall back on the outlet, and prevents anyone from soiling the outlet in drinking. Some such appliance should be installed on all ships.

*U. S. S. Vermont.*—The food served has been of good quality and sufficient in quantity. Practically every meal has been inspected and sampled by the medical officer, and in the last six months but one meal has been unsatisfactory, due to bad preparation. There has not been a single case of food poisoning. The following is a copy of a memorandum circulated among all members of the commissary force:

In view of the several recent epidemics of food poisoning of the type known as botulism, particular care should be taken by commissary stewards and cooks in regard to issue of foods, particularly of meats and canned vegetables and fruits. The slightest trace of any odor suspicious of putrefaction should lead to investigation and rejection of the article. (Cans should be examined for signs of age (rust, labels discolored or removal from the tins, and dents) and when opened should be examined for odor. While there are types of food poison not associated with bad odor, in general the nose is a safe guide in the detection of spoiled food. As most of the poisons of putrefaction, as well as the bacteria which cause them are destroyed by heat, thorough cooking is also an important factor in the prophylaxis of food intoxication. The importance of this subject is emphasized by the fact that these food or ptomaine poisonings are attended with many fatalities, in one recent epidemic 60 per cent of the cases resulted in death.

Particular attention has been devoted to the washing of dishes due to the importance of nonsterilized mess gear as a means of transmission of tonsillitis, diphtheria, pneumonia, influenza, measles, mumps, and scarlet fever. All mess gear is boiled for two minutes, and it is felt that this has been a factor in reducing the incidence of these conditions.

*U. S. S. Vestal.*—Owing to the fact that this ship is a fully equipped repair vessel with large shops, one would naturally expect a considerable number of so-called "industrial accidents." Such have been rare, however, due in no small degree to the "safety first" precautions. There have been a few mild cases of manganese poisoning aboard. These cases usually present themselves at the sick bay the day following a "pour" of manganese bronze in the foundry and are characterized by severe headaches and tinnitus, abdominal cramps, and constipation. The symptoms usually subside after thorough elimination.

From a sanitary viewpoint the general arrangement of the ship is not all that could be desired. The ship was designed and built as a collier and shortly after converted into a repair ship. The shops are large and well arranged, generally well lighted and ventilated, but all this to the sacrifice of practically every other essential for the modern and convenient operation of a naval vessel. There is insufficient berthing space for the crew, which results in overcrowding, and bathing facilities are not sufficient. Previous mention has been made of the toxic effects produced by breathing fumes from the foundry, but it is thought that this could be overcome by the wearing of a suitable mask. This is being investigated at the present time.

*U. S. S. Vicksburg.*—During the month of June the *Vicksburg* was engaged in relief work in connection with the influenza epidemic on the Alaskan peninsula. At Akutan and Ugashik it was found that the entire population of the villages was sick and many had already succumbed to the disease; not a single inhabitant was well enough

to care for himself or others. They were practically without food and sanitary conditions were extremely deplorable. It was apparent that if the entire extermination of the natives was to be prevented the ship must not only feed them and extend medical treatment, but sufficient men must be landed to nurse the entire population. Volunteers were called for, and out of practically the entire ship's company that volunteered 14 were accepted. They prepared food, nursed the sick, buried the dead, and improved the sanitary conditions. While engaged in this work one of the men contracted a very severe type of influenza-pneumonia followed by empyema. A thoracotomy was performed aboard, and the patient made an uneventful recovery. It is interesting to note that this man had previously received a streptococcus hemolyticus vaccine and pneumococcus lipo-vaccine types I, II, and III.

*U. S. S. Wickes* is a torpedo-boat destroyer of 1,450 tons, carrying a complement of 6 officers and 69 men. She was first commissioned July 31, 1918. The special winter clothing furnished and which proved so serviceable during the service in the British Channel and North Sea consists of:

Sheepskin-lined coats.....	1
Underwear, heavy.....suits..	2
Blanket shirts.....	1
Woolen socks, heavy.....pair..	2
Boots, leather.....do.....	1
Windproofs.....	1
Mittens, heavy.....pair..	1
Oil skins.....	1

*U. S. S. Wyoming*.—On August 1, 1919, while the *Wyoming* was at sea en route from Balboa, Isthmian Canal Zone, to San Diego, Calif., two men were admitted at morning sick call, 8.30 a. m., with membranous sore throat.

These cases were of a suspicious character, and they were at once transferred to the isolation ward, pending ultimate diagnosis, and, after throat smears were taken, diphtheria antitoxin was administered. On August 2, 1919, cultures, incubated for 18 hours on hard-boiled white of egg, were found to be of such nature as to justify a diagnosis of diphtheria.

On August 2, 1919, two additional men were admitted to the isolation ward as suspects. After administration of the antitoxin, smears were made and the patients were treated like the previous cases. On August 3, 1919, a diagnosis of diphtheria was made in these cases.

The following precautions were taken:

(a) Isolation of patients under care of special nurse who received an immunizing dose of antitoxin.

(b) Scuttle butt, which had been in use, placed out of commission July 31 and thoroughly cleaned. Since this time the scuttle butt in commission has been flamed hourly with gasoline torch.

(c) Examination of throats of entire ship's company every other day for possible cases.

(d) Daily examination of throats of all members of crew who had come in close contact with patients, i. e., those eating at same mess tables.

(e) Use of antiseptic gargle by all members of hospital corps, together with daily throat examination.

(f) Culture of throats of entire ship's company (1196) with a view to detecting and isolating incipient cases of chronic diphtheria carriers.

(g) Transfer of four cases of diphtheria to the United States naval hospital, San Diego, Calif., August 7, 1919.

The work referred to in subparagraph (f) was completed on August 13, 1919. Thirteen chronic carriers were detected and transferred to the naval hospital at San Diego, Calif., and the dispensary at the submarine base, San Pedro, Calif.

The completion of this work within six days without restricting the movements of the ship or resorting to radical measures of quarantine would have been impossible without the cooperation and assistance of the commanding officer of the naval hospital at San Diego, Calif., and of Dr. H. A. Thompson, city bacteriologist, San Diego, Calif. Dr. Thompson personally worked nearly all night August 7 to prepare the necessary culture media (1,200 tubes of blood serum), and further examined 650 specimens which very materially assisted the medical officers of this ship. There have been no cases since August 2, 1919.

*Destroyer squadrons, Pacific Fleet.*—Destroyer Squadrons 2 and 4 are those designated for duty in the Pacific. Portions of these squadrons have only recently taken station and the complete force has not yet been assembled. The vessels of the force are still widely scattered at various Pacific, Atlantic, and European ports, many having not yet been accepted from builders. The bulk of the force is in Pacific waters and of those commissioned the majority are at San Diego, Calif., the destroyer base, and the number with the flag is steadily increasing. The temporary flagship of the squadrons' commander is the *Melville*.

The average complement of these vessels for the two months was 5,574. Flotilla flagships and tenders had an average complement of 1,392; active destroyers 2,511, and reserve destroyers 1,671.

For this force in the Pacific there has been an average complement of 5 medical officers, of 2 dental officers, and of 46 hospital corpsmen. Based upon the average complement for the months of November and December, this gives one medical officer for every 1,115 men, one dental officer for every 2,787 men, and one hospital corpsman for every 121 men. Based upon the number of men actually in the force on December 31, 1919, there was one medical officer for every 1,032 men, one dental officer for every 2,579 men, and one hospital corpsman for every 112 men.

From the above the shortage of personnel in the medical department is self-evident. In actual figures based upon necessities this shortage amounts to 4 medical officers, 4 dental officers, and 34 hospital corpsmen.

The actual shortage in numbers is intensified by the character of the force, made up as it is of many small separate units and of inexperienced and untrained personnel, and by the necessity of using hospital corpsmen in duties not strictly related to the medical department. Concentration of men minimizes the number of medical department personnel necessary to care for them and the nature and duties of this force place it at the opposite extreme to concentration.

The Medical Department at the present time has not sufficient personnel to properly fulfill its mission to this force. Furthermore, the number of men and the number of units in the force is now and will be for some time in the future steadily increasing. No destroyer should leave port either for maneuvers in company with other vessels or for independent cruising without a representative of the medical department on board, and yet such occurrences can not be prevented. The most important function of medical and dental officers, that of taking steps to prevent disease, is largely in abeyance at the present time owing to the fact that their time is fully occupied by caring for those already sick and meeting requirements of court and board duty and the routine physical examinations.

The one point in the force at which a degree of concentration does exist is in the reserve divisions. These vessels, now numbering 29, are all moored at one pier. To take advantage of this concentration a building on the pier has been obtained for office purposes, and the commander of reserve divisions has agreed to reserve space for a dispensary and dental office therein. One medical and one dental officer should be assigned to the sole duty of caring for this group.

Reports and returns at hand upon which may be based statistics and conclusions relating to incidence of disease and injury are meager. This has resulted from the scattering of vessels of this force, uncertainty of organization, ignorance as to data to be submitted in reports, and method of handling this type of correspondence, and carelessness and stupidity in following the written directions issued in Navy Regulations, Manual for Medical Department, Fleet and Squadron Instructions. It may possibly be too strong a statement, but there is evidence to indicate that there is absolute neglect in the performance of duty in this matter; certainly there is much evidence of a lack of sense of responsibility and good judgment.

By reason of failure to submit reports at all or in a reasonable time, by omissions of essential data prescribed (even in printed forms of report), and as a result of the recent formation of the force it is impossible to give any statistical summary of all vessels for an entire year or even for one month.

In considering the figures given below it must be borne in mind that in many cases turned in the diagnosis was made by the chief pharmacist's mate.

The nine annual reports were received from one flagship and tender and eight destroyers. The average complement for these vessels was 1,380. The following table presents the admissions and annual rates per 1,000 for this group. These vessels during the year spent the majority of their time in the Atlantic.

	Original admissions.	Annual rate per 1,000.
All causes (diseases and injuries).....	536	388.40
Diseases only.....	482	348.27
Accidents and injuries other than drownings.....	54	39.13
Communicable diseases (combined).....	214	155.07
German measles.....	3	2.17
Influenza.....	67	41.30
Malaria.....	4	2.89
Mumps.....	6	4.34
Veneral diseases (combined).....	144	104.34
Chancroid infections.....	38	27.53
Gonococcus infections.....	86	62.31
Syphilis.....	20	14.40

The following table is based upon returns from 19 vessels in November (2 flagships and tenders and 17 destroyers) and 42 vessels in December (2 flagships and tenders and 40 destroyers). Fifteen vessels turned in reports covering both months (61 days), 5 made returns for November only (30 days) and 27 made returns for December only (31 days), a total of 47 individual ships. The average complement for these vessels was 4,064.

	Original admissions.	Annual rate per 1,000.
All causes (diseases and injuries).....	264	790.15
Diseases only.....	228	682.40
Accidents and injuries other than drownings.....	36	107.74
Communicable diseases (combined).....	48	143.66
German measles.....	2	5.98
Influenza.....	6	17.95
Malaria.....	1	2.99
Mumps.....	2	5.98
Tuberculosis, pulmonary.....	1	2.99
Venereal diseases (combined).....	36	107.74
Chancroid infections.....	7	20.95
Gonococcus infections.....	23	68.83
Syphilis.....	6	17.95

A comparison of the incidence of disease and injury between vessels of this force in the Atlantic and in the Pacific is interesting. Such a comparison is given in the table below. The rates for the vessels in the Atlantic are so greatly in excess of those for vessels in the Pacific as to be astounding and to immediately give rise to question as to accuracy of returns. It is to be borne in mind that the "Atlantic" figures are based upon 11 destroyers with a total average complement of 1,071 men and the "Pacific" figures are based upon 3 flagships and tenders and 34 destroyers with a total average complement of 3,064 men. Both sets of figures are taken from sanitary reports and Form F for the months of November and December, 1919. In reviewing these figures it must also be borne in mind that the Pacific vessels have been almost constantly in touch with medical officers and most of the time in port either at Mare Island or San Diego, while the Atlantic vessels have been cruising, visiting many ports including those in Panama and Central America. Weekly reports of communicable diseases show similar excessive rates for Atlantic vessels, especially for venereal diseases:

	Original admissions.	Annual rate per 1,000.	Original admissions.	Annual rate per 1,000.
All causes (diseases and injuries).....	53	602.02	88	349.41
Diseases only.....	44	499.79	73	289.85
Accidents and injuries other than drownings.....	9	102.23	15	59.55
Communicable diseases (combined).....	30	340.77	18	71.47
German measles.....	1	11.35	1	3.97
Influenza.....	2	22.71	4	15.88
Malaria.....	1	11.35		
Mumps.....	1	11.35	1	3.97
Tuberculosis, pulmonary.....			1	3.97
Venereal diseases (combined).....	25	283.97	11	43.67
Chancroid infections.....	6	68.15	1	3.97
Gonococcus infections.....	14	159.02	9	35.73
Syphilis.....	5	56.79	1	3.97

Provisions for care of the sick are ample both on vessels of the force and at ports used regularly by them. All treatment of the sick on destroyers is under the direct supervision of the medical officers of the tenders. Sick calls and routine treatments are carried out on the destroyers and cases requiring the advice of a medical officer are taken to sick call on tenders.

As there are no bunks allotted to the sick on destroyers bed cases are removed promptly or, where necessity demands, they are treated in their own bunks. Illnesses of mild severity or brief duration demanding bed treatment are usually cared for on the tenders and returns made as if emanating from the destroyer of origin.

Cases of contagious disease, of serious nature or prolonged duration, are transferred to a naval hospital at the earliest opportunity. No case is transferred to a hospital without having been seen and diagnosed by a medical officer unless delay would militate against the interests of the force or the welfare of the patient. A medical officer is at all times available for emergency calls from any vessel of the force.

*U. S. S. Georgia.*—The Hospital Corps complement had been daily instructed in their duties until the reduction in personnel made it impracticable. The present authorized complement consists of one chief pharmacist's mate and two pharmacist's mates second class. There are on board one chief pharmacist's mate and one pharmacist's mate second class. There is ample opportunity afforded for study. The present complement is attentive to duty and takes proper interest in study and general duties of the enlisted man. Under the present reduced complement it is not practicable to carry out any drills, but when operating under full complement at sea all drills were carried out.

*U. S. S. Greene.*—When one or more destroyers leave port on either a short or an extended cruise it is recommended that a medical officer be attached to one of the destroyers, as professional care is more often needed aboard a destroyer than on vessels of any other type, and it is also recommended that at least one dental surgeon be assigned to destroyer duty only, as the mission of this type of vessel carries them in so many ports where dental treatment can not be obtained, due to uncertainty of their stay in any one port.

#### UNITED STATES ASIATIC FLEET.

The average number of officers and men continuously on the entire station has been about 3,300 for the year. Roughly, one-third of this number have been in Philippine waters, and two-thirds have been at stations in China, Japan, and Siberia, or else cruising on vessels in the waters of those countries. Each part of the command has had its special sanitary and hygienic problems to deal with, and it would seem that the solution reached has usually been the proper one. Our Navy personnel on this station works amid living conditions that are far from the best. With communicable diseases of various sorts—cholera, plague, diphtheria, smallpox, scarlet fever, etc.—prevalent on shore in China and Siberia well nigh continually, and with certain tropical diseases endemic in the Philippines, it is remarkable that none of these menaces has wrought serious harm in the fleet. The number of admissions to the sick list out here is



always greater per thousand of personnel than in North American waters; and this is not surprising when one considers the type of ships doing duty in the East, the difficulties attending the care and handling of fresh food and water, the lack of facilities for recreation and amusement, and the temptations to loose living and neglect of sanitary precautions that confront our men ashore, especially those doing duty on vessels in Chinese waters.

Below is given a tabulation of figures covering admissions to the sick list on the station during the year, with the number of sick days caused thereby. These figures are not absolutely complete, because in a few instances the monthly reports from one ship or another have not been received by the commander in chief, owing to poor mail facilities. It is believed, however, that they are of sufficient accuracy to represent pretty nearly the true conditions. For purposes of comparison, data have been taken from the Surgeon General's annual report covering the statistics for the whole Navy for the year 1918.

	Asiatic station, 1919.	Whole Navy, 1918.
Average complement.....	3,891	.....
Total admissions, all causes.....	2,006	.....
Annual rate per 1,000 of complement.....	767.92	776.37
Total sick days.....	43,268	.....
Annual rate per 1,000 of complement.....	11,120	12,560
Total admissions, venereal disease.....	731	.....
Annual rate per 1,000 of complement.....	187.87	70.18
Percentage of admissions for all causes due to venereal diseases.....	26.49	9.04

Monthly reports of prophylaxis and the incidence of venereal diseases are received by the commander in chief from the ships and stations comprising the Asiatic command. From these have been selected the returns from 20 sources, embracing 14 ships, 2 naval hospitals, 1 navy yard, 1 submarine base, 1 marine barracks, and an isolated shore station. The ports visited by the ships in the list extend through many of the South Sea Islands, the Philippines, along the coasts of China, Japan, Siberia, and up the far reaches of the Yangtze River, where legitimate forms of amusement and recreation are practically nil, where about the only female associations obtainable are with women of loose morals, and where shore going immediately throws the temptation to venery in the path of every man.

In March of this year a fleet circular was published requiring that all men admitted to the sick list with venereal disease shall be kept on the sick list "during such period as open lesions are present or acute gonorrheal discharge with gonococci exists." This order was prompted by the fact that the incidence of venereal disease was very great, showing a much higher rate per 1,000 of complement than in vessels attached to the Pacific Fleet, and it was hoped that the loss of pay by men on the sick list because of disease due to their own misconduct would act as a deterrent and reduce the number of exposures. The result is quite surprising. For the six months prior to the promulgation of the order the annual admission rate for venereal disease was 227.5 per thousand. For the six months following the

order the annual rate per thousand increased to 242.2. Evidently in the minds of the sailor man the disadvantages of loss of pay were more than counterbalanced by the long period of rest and freedom from work consequent upon "hitting the list."

While the prompt administration of prophylaxis is at present our most effective means of holding in check venereal morbidity, still our greatest interest and effort are expended upon the proposition of how to reduce exposure. What lines of persuasion give the best returns in this direction?

Because venereal incidence is still high on this station in spite of persuasive and persistent lectures to the men, and in spite of the propaganda, literary and pictorial, put forth by the Sixth Division of the Bureau of Navigation, the fleet surgeons have wondered if restriction of liberty to periods of nine hours or less would serve to deter exposure or force early prophylaxis. The figures given in reports of prophylaxis have been analyzed to determine what percentage of men exposed to infection have acquired disease when prophylactic treatment has been given within six hours, within nine hours, and after each of those periods. During the year there were reported 16,095 exposures to infection among the men on ships and at stations given in the tabulation appended, or an annual rate of exposure of 4,139 per thousand. Of this number of men admitting exposure, 14,522 returned to their ships or stations and took prophylaxis within six hours, 15,468 returned and took treatment within nine hours, and in only 627 cases was the receipt of treatment delayed more than nine hours. Of the 14,522 men taking treatment within six hours 437, or 3 per cent, contracted disease. Of those treated within nine hours, 3.24 per cent contracted disease, while of the 627 men treated after nine hours, 7.81 per cent became infected. It would seem evident, therefore, that to have restricted the liberty of 16,095 men to a nine-hour period would have resulted in bringing timely prophylaxis to only 627 men, and it is safe to assume that it would also have produced in the minds of the other 15,468 men a feeling of discontent at such restriction of personal liberty, with a consequent lowering of morale among them. A six-hour period of liberty has of necessity been enforced at Vladivostok during a large part of the year for political reasons, but the men on ships doing duty there have realized that the measure was a necessary one. From the exposure rates of these ships it appears that the men on board must have made up for lost hours of liberty by extra effort when the opportunity was theirs, for one of the ships at Vladivostok four and a half months presents the highest exposure rate of the entire station (12,211 per 1,000), while the others are by no means in the lowest exposure class.

Doubtless the limited benefit accruing from these and other forms of persuasion had more or less to do with the formation of the Sixth Division, Bureau of Navigation, Section on Social Hygiene. In theory the principle of that division is sound. It is not known what practical results have been obtained from its activities, but it would seem that provision by the Young Men's Christian Association and the Knights of Columbus of a profusion of entertainments and forms of manly amusements have not kept down the exposure rate on ships at Vladivostok.

The practical value of deterrent propaganda of any sort can be measured in no other way than by its influence upon the rate of exposure to infection. The rates per thousand of admissions to the sick list do not show this. They show only the failures of treatment to prevent disease. The only means we have to ascertain that factor is our record of venereal prophylactic treatments, or, in other words, the voluntarily admitted exposures. It is suggested, therefore, that as a measure of effectiveness of any form of antivenereal propaganda medical officers should keep and tabulate the records of exposure as well as the records of venereal incidence.

The fleet surgeon's report for 1918 called the attention of the department to the shortage of medical officers on the station. In November the commander in chief requested, by radio, that 15 medical officers be ordered to the Asiatic command to fill vacancies then existing and to provide replacements for officers whose tours of duty would expire in the spring of 1920. In response to that request information has been received of the designation of 11 officers for duty in the Far East. In the meantime, however, the station has been deprived of the services of two officers because of illness. One of these officers has been already sent to the United States and the other has been under treatment in hospital for six weeks, with no prospect of immediate return to duty. During part of the month of December four cruising vessels were without medical officers. To meet all requirements there should be at least 26 medical officers on the station, but during the past year the greatest number on duty has been 21. Even 26 medical officers would not provide an allowance for illness or other casualties among them. When all those officers arrive, who have been designated for Asiatic duty, and the officers who are due to go home have returned to the United States, during the month of March, 1920, the medical officer situation will have been improved by the addition of but one man—for duty on the receiving ship at Cavite.

This policy leaves no margin for casualties among the commissioned personnel. There should be at least three junior medical officers at Canacao, three at Olongapo, and one at Yokohama. These three additional officers should, if possible, be bachelors, both on account of the limited quarters for married men and because their sudden removal to other stations on emergency calls would work less hardship to them than to officers with families. An extra man at Yokohama could quickly reach Vladivostok, Shanghai, or a ship up the Yangtze. Extra men at Manila and Olongapo could be used for traveling recruiting duty, for replacing officers entitled to leave, or to take the place of those who might become ill. At Canacao especially there is work enough for an additional medical officer at all times.

The authorized complement of hospital corpsmen on the entire station, based upon the Bureau of Navigation's Circular Letter No. 27-19, is 103. Approximately this number of men have been available throughout the year. Most of the cruising ships on the station are small, and their complements entitle them to but one hospital corpsman each. Because of the isolated places to which their duty calls them, it would be best to have a chief pharmacist's mate attached to each of these vessels. Neither the *Pampanga* nor *Samar* has had a medical officer on board during the year, and the medical

department has been represented by a pharmacist's mate, first class. It does not seem fair to the personnel of a ship beyond the reach of civilian medical help to subject them to the nonprofessional care of an enlisted man. Shortage of commissioned personnel, however, has made this action necessary, and, as noted above, there have been periods when each of four vessels lacked a medical officer.

Dentistry has become such an important adjunct to the medical care of Navy personnel that the neglect of any portion of our men is not to be thought of. On the Asiatic station nine vessels, carrying an aggregate of 700 men, are habitually in Chinese waters. At Peking the Marine Guard averaged 240 men in 1919. It has been arranged that a Navy dental officer shall be stationed in Shanghai to care for the personnel of ships coming to that port for repairs, while another is located at Peking. At Shanghai a portable dental outfit only is available. Its use is not conducive to the best work, and it is recommended that a Navy standard outfit be substituted. If this is done it will be necessary to provide additional space, light, heat, and water. At present the dental officer occupies a small room in the building used by the Navy purchasing officer. It is not large enough nor is it properly lighted or heated, and it has no water supply for the sanitary cuspidor or for the proper toilet of the operator's hands. Good dental work demands careful technique in order to avoid infection, and it is but just that the proper facilities should be provided with which to accomplish that technique. If the Bureau of Supplies and Accounts can not spare the necessary space in this Shanghai building and furnish water, heat, and proper light, it is recommended that some other apartment be found wherein may be installed the standard equipment necessary for scientific dentistry.

The American Red Cross establishment at Vladivostok is preparing to abandon its activities when our Army evacuates that neighborhood. It has large stores of medical, surgical, and dental supplies on hand. Maj. Allen, the officer in charge, has been most urgent in his request that he be allowed to donate to the Navy such articles of surgical and dental materials as we can use, rather than have them fall into the hands of irresponsible parties who would make improper use of them. The commander in chief authorized the acceptance of a limited amount of these stores, an inventory of which will be forwarded to the Bureau of Medicine and Surgery as soon as it is received.

In August last the commander in chief inspected the private estate of an association of British gentlemen at Kuling, China, a few miles from Kiukiang, on the Yangtze River. He was much pleased with the possibilities of Kuling as a place of rest and recreation for our Navy personnel in that trying neighborhood. The governing council of Kuling offered the free use of the necessary land upon which to build the rest house and recreation grounds, and the commander in chief recommended to the Navy Department the acceptance of their offer. Political stumbling blocks were found to be in the way of this consummation; but the Sixth Division, Bureau of Navigation, has offered to provide the necessary funds for rental of buildings if such can be found belonging to some one else. As it appears from the report of the commander in chief on the subject that all the present buildings at Kuling are already occupied, it seems probable that we shall be deprived of this opportunity to offer a clean, healthful

source of recreation for the enjoyment of the men on river duty. In this connection attention is invited to the report made by the former fleet surgeon to the commander in chief relative to the health-promoting aspects of Kuling, a copy of which was submitted to the department with the commander in chief's report of August 28, 1919.

*United States Asiatic Submarine Flotilla.*—There has been very little sickness in the personnel of the flotilla, and general health has been excellent.

Ear trouble has been the most common complaint, usually a mild otitis media. During the past year 29 persons were admitted to the sick list; 2 were for injuries of a minor nature, and 13 for venereal diseases. From the above it can be readily seen that the percentage of venereal diseases has been exceedingly high. Since the closing of the houses of prostitution in San Roque and vicinity, August 15, 1919, no cases have occurred.

*U. S. S. Brooklyn.*—With the exception of venereal diseases, the health of the personnel has been excellent and practically free from infectious diseases, in spite of visiting various ports where there is practically no sanitation. It is noted that of the total number of sick days, venereal diseases yield nearly 44 per cent. This station is particularly bad in this respect. There is a slight improvement over last year but it is not as much as desired.

For over a year and one-half it has been the practice on the *U. S. S. Brooklyn* to keep all venereal cases while in the infectious stage on the sick list. This showed such good results that a fleet order was issued in March prescribing that hereafter all persons with venereal diseases shall be regularly admitted to and retained on the sick list during such period as open lesions are present, or acute gonorrheal discharge with gonococci exists.

Owing to the demobilization and discharge of duration of the war men the need for men became almost desperate and the commanding officer arranged for the suspension of the above order and this was suspended November 6. The following is the monthly admission rate of the *U. S. S. Brooklyn* for 1919:

Months.	Admissions.	Average complement.	Admission rate per 1,000.	Months.	Admissions.	Average complement.	Admission rate per 1,000.
March.....	9	701	150.99	August.....	8	644	146.25
April.....	8	700.9	138.85	September.....	9	634	172.7
May.....	29	701.7	496.6	October.....	9	617	173.62
June.....	12	674	216.6	November.....	23	460	608.32
July.....	12	681	223.9	December.....	29	440.5	774.4

In January, February, and March the ship was in Vladivostok and the records for the first two months were not above the average. In May there was a rise when the ship visited Shanghai but the most notable rise was after Fleet Order No. 8, was suspended November 6 and venereal diseases rose to 608.32 for November and 774 for December. In fact from November 6 to December 12 (from the suspension of the order until four days after leaving Vladivostok) the rate was 860 per thousand. The *U. S. S. New Orleans* was in the same port with the order remaining in effect and had no such venereal list. Venereal inspections were held at various intervals when the

order was in effect and a few cases of concealed diseases were found but not many. It is believed that the placing of the man on the sick list while in an infectious stage, with consequent loss of pay and extension of time has a distinctly beneficial effect in restraining men from exposure to venereal disease; and, if they are exposed, in making them more careful about taking prophylaxis, thereby lessening the venereal admission rate.

Arrangements were made with Col. Cummings of the United States Army, at Vladivostok, for the taking of throat cultures of a number of men on board and 125 cultures were taken, including officers and men from nearly every mess, division, or part of the ship. They were examined for streptococcus hemolyticus, particularly with the idea in mind that it would be an index to the sanitary conditions of our messing system, and to our surprise 20 per cent were found infected. Upon investigation it was found the men in the scullery were changed frequently, did not know their responsibilities, and hurried through the washing of the dishes with the idea of finishing as soon as possible. This was corrected and the men in the scullery were made to know their responsibilities. Another more serious defect was found in that the spoons, knives, and forks were simply washed at the mess tables and that the water when first received, though warm, was not boiling, and during the last washing it was not hot enough to destroy germs. This condition was likewise changed and everything went to the scullery and was thoroughly boiled. The movement of the ship prevented another culture being taken to show what improvement resulted, but if this is a true index of the messing conditions on board ship it should be carried out every few months and defects hunted down.

*U. S. S. El Cano.*—The physical condition of the personnel has been excellent during the past year. Frequent drills and exercises have been held on board ship, and in the different ports the crew take advantage of the opportunity to play football and baseball and to take long walks into the surrounding country. Swimming is not permitted in the Yangtze River owing to the muddy, contaminated water and treacherous current, but while the ship was in Philippine waters this sport was encouraged and taken advantage of by the crew.

There have been no cases of infectious diseases aboard during the past year. There have been no serious accidents. The thorough inspection of all fresh meats and vegetables coming aboard and the constant warnings to the crew against eating or drinking water ashore resulted in not one intestinal infection. Prophylactic doses of quinine were given against malaria and no cases of this disease became manifest.

*U. S. S. Helena.*—All health records were gone over and typhoid prophylaxis administered to the men who had not had any during the previous four years.

Considering conditions ashore, venereal disease has not been so prevalent, due mainly to (1) the rigid prophylaxis immediately upon returning from liberty; (2) granting few all-night liberties; (3) cooperation of the crew.

*U. S. S. Mohican.*—While the ship is designed to care for about 300 persons, as many as 800 men at various times during the past year have been attached to the ship for a period of from two to three

weeks. It can be readily seen that this works hardship amongst the men. Being unable to find suitable sleeping quarters on the ship, they are quartered under the submarine base sheds, which are damp and totally unfit for such a purpose. During the rainy season this becomes quite a serious proposition, as almost all men received are recruits who do not know how to properly care for themselves under crowded conditions and strange environment, the result being increased sick days from colds, etc. This ship is limited in its use as a receiving ship, because of insufficient galley, berthing space, and toilet facilities, and it is recommended that it be replaced by suitable concrete barracks.

*U. S. S. Monocacy.*—When the social conditions ashore are taken into consideration together with the many opportunities that present themselves to men for drinking and associating with women of an undesirable type, the percentage of venereal diseases is low aboard this ship. The following table will give an idea of the occurrence of venereal disease and the efficiency of the prophylaxis:

Number of hours after exposure.	Admitted exposures.	Gonorrhea.	Chancroid.	Syphilis.	Number of hours after exposure.	Admitted exposures.	Gonorrhea.	Chancroid.	Syphilis.
1	189	1			7	9	2		
2	68	3			8	21			
3	32		2		9	3			
4	37				10	1			
5	30		1						
6	15				Total..	405	6	4	

Protargol (1 per cent) and calomel ointment (33½ per cent) in lanolin have been used as prophylactic treatment, and both are kept in the venereal head at all times. Frequent lectures have been given on the venereal problem, and the men have been told of the importance of total abstinence; also of the necessity of early and properly taken prophylaxis, if exposure to infection has been incurred. The medical officer is of the opinion that these talks have had a very good influence and have been instrumental in reducing the number of exposures and infections. Repeated smears from all chancroids have been taken and stained with Fontana's method. Secondary eruptions have been carefully watched for.

The Americans ashore take a great deal of interest in the crew, often having as many as possible to their homes to dinners, etc. In this regard Mr. Francis G. Prescott, of Anderson, Myer & Co., Changsha, China, stands out as a sort of father to the crew. On various occasions he has turned his beautiful home over to them, giving dinners, games, and such music as could be furnished for their entertainment.

It is the opinion of the officers of this ship that if some place were officially provided on shore, where the men could gather and indulge in clean sports, athletics, reading, etc., they would not only benefit in every way but better control could be kept over them.

*U. S. S. Palos.*—The physical condition of the personnel is very good, there being none who show ill effects from service on the

station. Athletic sports are encouraged on shore, and the men for the most part keep in good condition.

For the last few months we have had a bungalow a few miles away in the hills for the men. About one-fourth of the crew go there each week, their food, water, and bed clothing being sent from the ship. At the close of the year 1919 the ship is anchored at Chungking, China, where she has been for the last six months. The officers and crew are in excellent health. The present commanding officer has always shown an interest in bettering the sanitary conditions of the ship and doing everything to add to the health and contentment of the men under his charge.

*U. S. S. South Dakota.*—This ship left New York September 5, 1919, with over 1,400 men on board, most of whom were raw recruits, and about 500 arrived on board still in civilian clothes, never having passed through a period of isolation, nor had they been protected with cowpox or typhoid vaccination. They knew nothing of caring for themselves or their effects aboard ship, and it is believed that only the hand of a kind Providence kept us free from some epidemic disease in the fifty-odd days between New York and Manila, where these excess men were transferred. Many of these men were much below the standard physically and looked to be below the minimum age. Defective teeth were extremely prevalent. At Colon it was necessary to take aboard 700 tons of coal in excess, which was stowed about the main and gun decks, thereby increasing the crowded conditions and necessitating men sleeping in all sorts of out-of-the-way places; in addition to this the galley, baking, and bathing facilities were crowded to extreme capacity. In view of the length of the voyage it is believed that these conditions had a very demoralizing effect, extremely detrimental to the naval service.

An epidemic of influenza occurred on this ship during the month of February, 1920, while in Siberian waters, and while the number of cases was limited to 67 in a crew of about 875 men and 47 officers, it is believed that had it not been for the radical measures instituted and the hearty cooperation of all concerned a very serious epidemic might have resulted with its concomitant high mortality.

The source of infection is somewhat doubtful, as there had been cases of influenza on the Japanese man-of-war lying in the harbor, and there was general passenger traffic existing between Siberia and Japan, where an epidemic of influenza was raging. The most probable source of infection, however, was through the *U. S. S. Pompey*, which ship had coaled at Nagasaki, Japan, en route to Vladivostok from Manila, and brought a draft of men to this ship. The first case of influenza developed in one of these men, who reported at the sick bay with symptoms of an ordinary severe cold shortly after his arrival on board. It was not until the third or fourth day that a diagnosis of influenza was possible. The patient was then immediately transferred to the U. S. Army Evacuation Hospital No. 17, Vladivostok, Siberia, February 19, 1920. No cases developed on the *U. S. S. Pompey*. The *U. S. S. Albany* tied up alongside of the *U. S. S. South Dakota*, coaled from the *U. S. S. Pompey*, as did this ship, with the usual intermingling of crews, and no influenza cases developed on board the *U. S. S. Albany*. A medical officer of the U. S. Army, specializing in epidemiology (Lieut. Col. Cummings), suggested that



it might be a food-borne epidemic, but this idea seemed to be dispelled in view of the fact that cases continued to appear until February 26, when the last case was admitted. No particular part of the ship was infected, as cases developed in all quarters, including those of the officers. It is also to be noted that a small epidemic broke out several days later at the radio station, Russian Island, about 15 miles distant, and there was practically no intermingling of these men with the men of the *South Dakota*, but they did have liberty in Vladivostok.

It was a particularly unfortunate time for an epidemic to break out on the ship as the men were much crowded, owing to the cold (temperature ranging from 1 to 20 below zero daily). One entire deck was useless as sleeping quarters for nearly one-quarter of the men, and in order to keep the ship sufficiently warm almost all hatches were kept battened down. The measures instituted to prevent the spread of the epidemic as recommended by the medical officer were as follows:

(a) That all men be taken out for marches of one-half to one hour each twice daily; (b) that the crew and officers be given a nose and throat spray of one-half strength Dobell's solution twice daily; (c) that all decks and bulkheads be swabbed with a cresol solution twice daily; (d) that particular attention be given to actual boiling for 2 minutes of all mess gear and drinking parts of scuttle butts.

In addition to the above, drills were discontinued for the purpose of devoting all possible time and means toward checking the spread of the disease, and finally the commander in chief succeeded in persuading the Y. M. C. A. to give up one of their large assembly rooms to house 150 men. This was a most valuable assistance as the men used this hall for living quarters, only returning to the ship for meals, thereby practically isolating them from the probable sources of infection while thinning out the crew and giving additional sleeping space to those remaining aboard. Cultures taken from the throats of 200 men only showed an index of 7 per 1,000 as carriers of hemolytic streptococci, this being a much lower rate than either the U. S. S. *Brooklyn* or the U. S. S. *Albany* showed.

The methods used in spraying the crew twice daily necessitated the invention of some practicable air apparatus for the sprays. For this purpose a small connection was made by the machine shop to fit the standard Navy spray bottle, and this, by means of a length of rubber tubing, was connected to the ship's compressed air line where a pressure of about 5 pounds was maintained, thereby giving a very satisfactory and simple means of spraying the entire crew rapidly.

#### HOSPITAL SHIPS.<sup>1</sup>

*U. S. Hospital Ship Comfort.*—Several cases of acute follicular tonsillitis have occurred in the crew since our arrival at the navy yard. These were evidently due to lowered resistance from chilling incident to the irregular and unsatisfactory methods of heating the ship since the removal of all of her boilers. A large donkey boiler recently supplied by the yard for use during the period of overhaul has overcome this difficulty. The defects in ventilation noted in the last annual report will be remedied by rearranging and decking in the four intakes on

<sup>1</sup> See also return of sick and wounded, page 21.

the fore-castle, so that they can be kept in service at sea. This work has been approved by the Bureau of Construction and Repair and will be done during the present overhaul period. Electric lighting circuits, which in many places were hurriedly and flimsily installed during the conversion and original fitting out of this vessel as a hospital ship, have been replaced by standard wiring and water-tight fixtures throughout.

No vermin or evidence of vermin have been found in any of the wards, but the hospital corps quarters became infested with bed bugs during the year. Systematic efforts have been successful in reducing the pest to a minimum but not in entirely eradicating it. These quarters are fitted out with the old German hospital bunks, while the quarters for the deck and engineer's force are fitted with the new type Navy transport bunk. No vermin have ever been found in quarters fitted with the new-type bunk. Also there are two special tiers of these bunks in the hospital corps quarters which have never become infested. This can probably be explained by the fact that the construction of the new type of bunk is such that the tubing employed is all sealed by clamping the ends, and there are no hollow spaces or crevices to harbor vermin. In the German hospital type of bunk, however, reverse conditions obtain. The bunk frame is constructed of eight pieces of tubing with open ends, leaving 16 openings through which bugs can enter and escape all methods of eradication, except fumigation or thorough flaming.

Acting on the suggestion indicated in the above observations, that the best way to combat bed bugs is to leave them no convenient place to live, we are now sealing all of the tube ends in the old-type bunks with solder and believe by this means we will finally be successful in entirely eliminating this pest.

On our first trip with Army wounded, of whom the large majority were bed cases on regular diet, considerable difficulty was experienced in serving meals promptly and uniformly hot, when using the usual aluminum conveyors in metal slings. It was found that these retainers were too small to be practicable when serving food to bed patients in such large numbers (142 in the general ward alone). This difficulty was overcome by using full-sized agate buckets (with cover), one for each component of the meal and organizing bucket squads. Mess gear and bread and butter were first distributed to all patients. Then, when everything was ready, the bucket squads would file in and serve the meal, each squad representing all the components of the meal. This organization resulted in prompt service, and every patient had all the components of the main course served to him almost simultaneously, and he could start in on his meal at once while it was still hot. This method proved satisfactory and was favorably commented upon by an Army Board appointed to investigate food and methods of messing on transports, which visited the ship on a subsequent voyage.

The ship's laundry was described in the last annual report. Under present conditions, lying in the yard in ordinary while undergoing overhaul, the laundry is unable to function, owing to the shortage of men and the inability to obtain direct current to run the machinery. In full commission, with a competent head man and two helpers, the ship's laundry is capable of doing the work of the full ship's company

of approximately 400 officers and men and of 350 patients, together with all the medical department linen required for that number of patients.

During the original fitting out, the ship was heavily stocked with medical and surgical supplies with a view to issuing emergency supplies to other ships and stations abroad. This was done in many instances, both abroad and while serving with the fleet at home. However, upon arrival at the navy yard, Mare Island, Calif., we were still overstocked and about \$25,000 worth of medical stores, consisting principally of cotton, gauze, and caskets, were, with the commandant's approval, invoiced and turned over to the local medical supply depot. The medical storerooms are ample in capacity, dry, and well ventilated and fitted with metal lockers for poisons and with burglar-alarm attachments connected with the officer of the day's desk and the pharmacist's stateroom.

In the surgical and medical wards bunks in the lower tiers are all fitted with the "Fowler spring," consisting of a spring frame having two joints and lever stops, which readily permit of adjustment to any angle without disturbing the patient. They have been found particularly useful in maintaining the Fowler position at any desired degree and for placing convalescent patients in the sitting or semi-prone position. These bunks have proved invaluable in the surgical ward.

In view of former unfavorable recommendations of commanding officers of hospital ships as to the advisability of having female nurses on board, there is a disinclination to recommend them for duty on this ship. If the present shortage of trained men of the Hospital Corps continues, however, there would seem to be no other solution of the problem that confronts us. Seven female nurses, including a chief nurse, can be comfortably quartered. There is not room for more, and to comfortably quarter this number will necessitate the use by duty officers of two or three rooms reserved for sick officers. One of these nurses could be assigned as a chief nurse, two to the surgical ward, two to the medical ward, one to the operating room, and one to special cases. This is certainly a small number, but it is believed that they would be exceedingly useful.

*U. S. Hospital Ship Solace.*—The average complement of crew and patients during the year has been 251. The allowance of crew's mess gear has been insufficient to meet the demands of the many mess units on board the *Solace*. Chipped and cracked crockery has been used through necessity and white enameled mess gear substituted in many cases. The crew is primarily to blame for a large amount of the shortage and the breakage in the different messes has not been reasonable. Nevertheless an insanitary condition has been brought about by failure to supply the amount of mess gear necessary. As every effort has been made to stop the breakage without success, if the mess gear allowance is not increased this condition will continue. Ship's stores and storerooms are sanitary. The three 2-ton Allen dense air ice machines have been overhauled and are satisfactory. The ship's refrigerating plant has been entirely overhauled at great expense and put in first-class condition. The galley has been entirely overhauled. The tile decks have been repaired, the bake oven relined, and three new aluminum 40-gallon kettles substituted for three old 20-gallon ones.

The complement has been sufficient. The efficiency of hospital corpsmen has been far below the usual Navy standard on account of inexperience and the discontent due to low pay. The men do not look forward to promotion with any spirit. This condition may change if they are properly remunerated. A first-class pharmacist's mate would be entirely satisfied with one-quarter the wages of a bricklayer, or an ordinary city street sweeper.

The engines, motor boats, main condenser, refrigerating plant, fresh-water system, and plumbing have received extensive overhauling. There has been a general overhaul of all pantries, the scullery, galley, laundry, and diet kitchens, removing woodwork when necessary, and substituting metal finishings. Porcelain hoppers have been removed from different parts of the ship and new ones substituted. In fact, there has been a general sanitary survey and clean up.

In addition to the necessary structural repairs which have been made, the *Solace* has experienced a general refurnishing, such as she has not known for years.

The U. S. hospital ship *Mercy* has been assigned to the Pacific Fleet and will temporarily serve as a transport for officers and their families, duty such as the *Solace* once performed for a number of years.

The U. S. hospital ship *Comfort* is undergoing repairs.

The U. S. hospital ship *Repose*, at Olongapo, P. I., has been ordered to be sold. A shore hospital will take her place at Olongapo, P. I.

Hospital ship No. 1 (U. S. S. *Relief*) was launched December 23, 1919, at the navy yard, Philadelphia, where she is now nearing completion. Her complement is being assembled in prospect of early commissioning.

#### AMBULANCE BOATS.

A special type of small vessel for use in transporting the sick between ship and hospital in harbor has been employed both at New York and at Mare Island, Calif. During the war the large number of sick and wounded arriving in New York on transports and requiring quick, safe, and easy transportation to hospital was one factor and the distance of the Mare Island hospital from the harbor of San Francisco (30 miles) was another and very different, but equally important one, which lead to the use of ambulance boats. The demand for such service in New York has passed with demobilization. It is as cogent as ever at Mare Island, Calif. It was here that the ideal water ambulance was evolved from a 60-ton motor tug originally destined for service on the Atlantic Coast and overseas. The principal and characteristic feature of Ambulance Boat No. 1 in use between San Francisco and Mare Island is the utilization of the Stokes splint stretcher in place of a bunk with all this offers in the way of simplicity, dispatch, and comfort in the various moves from ship's berth to tug, tug to motor ambulance, ambulance to hospital required in transfer of patients. The system of exchange of stretchers and bedding used in the British naval service was also adopted.

Navy Ambulance Boat No. 1 is a 65-ton motor tug propelled by a 4-cylinder, 4-cycle, 150-horsepower, distillate burning Union engine, with a speed of 11.5 knots, and equipped to carry 24 stretcher and 12 ambulatory patients. There are four compartments for the sick: The main forward one for 12 stretchers and 12 ambulatory cases, and used for isolation; a sanitary toilet; sanitary washroom; a compartment

filled with linen, medicine, provisions; and mess-gear lockers, sink, electric stove, toaster, and fore and after seating arrangements for walking patients. The stretchers are swung in four tiers of three each secured at the head by iron hooks to the bulkhead and at the foot by two hooks, one to a stanchion, the other to a chain swinging from overhead. The boat is electrically lighted and there are electric facilities for cooking, heating, foot warmers, running the fans, etc. The heating is by 2-inch fore-and-aft pipes connected with the hot-water jackets of the main engine. There are double doors for conveyance of stretchers as well as hatches through which they may be lowered from ship or dock.

In a period of two months this boat conveyed 270 patients between San Francisco and Mare Island. The U. S. S. *Southport* operated with great success in New York harbor throughout the period when the sick and wounded were arriving in large numbers, and continued in use until October 18, 1919.

### HOSPITALS.

So far as construction, material, supplies, and equipment are concerned, our hospitals are in flourishing condition. Many new forms of activity, the need for which was developed or accentuated by the war, are being pursued, particularly certain forms of mechanical and electric therapy and hydrotherapy, too much neglected previously by the profession at large. Efforts in this direction and along old lines are hampered by shortage of medical officers, nurses, and hospital corpsmen as amply set forth in many of the reports that follow.

Very earnest consideration has been given to the problem of wisely and economically returning to a prewar status. The policy in this respect has been readjustment, not demolition or spoliation. Buildings and equipment in two notable instances, the naval hospitals at Philadelphia, Pa., and Cape May, N. J., were assigned to the United States Public Health Service. Some were placed out of commission (Navy base hospitals abroad, except No. 1, which was assigned to the Army). Individual buildings in excess of present needs are utilized as storehouses and will become available in the event of naval expansion. In a few instances new construction has been recently undertaken or completed to meet permanent demands, as at Fort Lyon, Colo. The hospital at San Diego, Calif., has but recently begun operations. It is required by the growing importance of the station there located.

A board of medical officers is now in session to devise a comprehensive modern system of keeping hospital records, more complete in details of diagnosis than the individual health record or the statistical records filed in the bureau require.

*Annapolis, Md.*—As this hospital was one of the earlier ones of the modern type erected for the Navy, experience has revealed minor defects which should be put on record as a guide in future construction. Fortunately they relate more to convenience of administration than to the welfare of the patients, but the two phases are often very closely related. For example, a smaller personnel would suffice to care for the same number of patients if there were fewer wards and each had a greater capacity. When new construction is undertaken this should be borne in mind. There are accommodations for only

six officer patients, putting two in a room, which is inadequate for an establishment of this kind. The older wards are deficient in utility rooms and quiet rooms, and there is no quiet room connected with any of the four principal wards of the main building. There is no provision for warming the food served in sick officers' quarters. Partitions of frame and glass could be used to screen off two or three beds in the larger wards. The compartments so formed would be valuable in cases not diagnosed on admission, as, for instance, a throat infection which might later prove to be diphtheria. The patent preparation known as "asbestone," used to cover the basement floor, has not proved satisfactory, owing to the unsightly wearing of the surface. It has to be coated weekly with a coating of red shellac, which is an expensive, time-consuming undertaking.

The local telephone service and fire alarm have been out of commission for some time. Modern dishwashers of adequate capacity, dish sterilizers, a disinfecter, and an incinerator are required. Some of these matters are already under consideration by the bureau.

The temporary buildings erected for service during the war are deteriorating rapidly, but they are now required even for the personnel of a peace basis. They could be replaced gradually as funds are available, but the subject should receive immediate attention and provision be made for comprehensive uniform construction.

As a first step, enlargement of the present laundry building (by extension west and addition of two stories) is most urgent. This would replace the Hospital Corps barracks, give a small observation ward, provide needed space for new and expensive disinfecter, and laundry machinery now on hand and deteriorating in storage, and by transfer of the present operating department, afford additional quarters in the main building for sick officers. This addition would also provide increased heating plant and coal storage; at the present time it is frequently impossible to keep the temperature in all the wards even in the main building above 50 F. during the day, due to overload on the three boilers. As one of the original coal bunkers has been utilized for the filtration plant there is now storage capacity for barely a month's supply and it has been necessary to keep 300 tons or more on an open dump in the grounds. Another boiler and additional bunker space are urgently needed before next winter, and steps to provide the same should be taken at once.

Much difficulty has been experienced in obtaining enough coal, due chiefly to labor conditions. At times we have had only a day's supply on hand and have been obliged to tide over the emergency by drawing upon the Naval Academy. The endeavor to keep always on hand at least one month's supply has been wholly unsuccessful. In order to do this an outdoor bin should be built capable of holding about 500 tons, unless indeed, the present bunker capacity is more than doubled, which seems impracticable.

The main kitchen is now in one of the temporary structures and there is no space elsewhere to accommodate it. A permanent structure for this indispensable department will therefore soon become imperative and steps should be taken to provide the same before the present flimsy building becomes useless, a matter of no great time.

The cost of the ration, averaging \$1.298 for the year, seems high, but there are well known local conditions which render it impracticable to keep it down to levels prevailing elsewhere. No material

reduction can be made without impairment of efficiency, although the rate here is about 50 cents higher than at certain other hospitals.

The personnel consists of 8 medical officers, 2 pharmacists, 24 nurses, and 37 hospital corpsmen.

There have been 133 cases of contagious disease under treatment, 80 of them being diphtheria of mild manifestations and due to a general epidemic in this vicinity. About 4,000 examinations of sputum, blood, urine, cultures, etc., have been made in the laboratory. In the X-ray department 2,854 exposures were made and 275 treatments given. Major operations numbered 52, minor operations 256. A large proportion of the hernias and appendectomies were performed under regional anesthesia. The two deaths in the surgical service were due to (1) gunshot wound of the face; (2) acute intestinal obstruction.

*Canicao, P. I.*—The general condition of all buildings with the exception of power house and stable is good. Constant renewal is necessary due to termites and climatic destruction of all woods other than Philippine hardwoods. Preservation requires that the exterior of all buildings be painted annually.

The operating building is in excellent condition; the interior has been painted, extra emergency lighting has been provided for the large operating room by running a separate 220-volt line and installing a large central lighting fixture. An exhaust fan is in the process of installation.

The water supply from a 500-foot well is excellent in quality and ample in quantity; our pump has a capacity of 150,000 gallons in 24 hours, which is stored in a 100,000 gallon tank. Great demands on this supply have been made by the radio station for circulating water for Diesel engines. This has at times amounted to from 70,000 to 80,000 gallons daily, but at present is reduced to about 30,000 gallons, circulating water now being provided by a surface well at the radio station. The hospital water supply is ameba free; all water for drinking and culinary purposes as well as for ice is distilled as an added precaution.

Taking into consideration the limited and uncertain market the food supply, both in quality and preparation, has been excellent. Meats are inferior in quality, due to the absence of contract for supply of Australian products. Fresh vegetables are not obtainable and in consequence the diet necessarily is apt to become monotonous. The ration cost has steadily increased, the average cost per diem for the year being \$0.7039.

The work of the Hospital Corps has been excellent; most of the men are young and inexperienced, but they have been quick to learn, attentive, and reliable; very few serious infractions of discipline have occurred.

The following table shows the number of admissions for disease and injuries for the year:

Diseases:		Injuries:	
Admitted.....	358	Admitted.....	29
Readmitted.....	801	Readmitted.....	54
Total.....	1,159	Total.....	83
Sick days.....	20,917	Sick days.....	1,494

Total sick days..... 22,411.

For the year 1918 the total of sick days was 21,281, or an increase of 1,130 sick days for the past year; of the total number, 6,937 sick days were for venereal diseases.

During the year 131 operations, of which 44 were major, were performed with no mortality.

The 65 cases of contagious disease were responsible for 1,203 sick days. Practically all cases of measles and mumps were from infected drafts of men arriving on Army transports, where all susceptibles were infected; these diseases soon disappeared after arrival of the drafts at the United States Naval Station, Cavite, P. I.

A hotbed of venereal infection existed for the first seven months of the year in the barrio of San Roque, adjacent to Cavite. After much agitation the red-light district of this place was broken up and the principal source of infection removed.

The admissions and readmissions for venereal diseases were as follows:

Gonorrheal infection, all types.....	105
Chancroid infection.....	96
Syphilis.....	41

Upward of 7,600 laboratory tests, analyses, examinations, etc., have been made; 744 mils of triple typhoid vaccine were manufactured. At the native clinic conducted by the staff of this hospital the total number of patients treated during the year was 10,441. Fees have been increased to a point where this clinic is practically self-supporting, except as to pay of the services of medical officers and nurses.

The insanitary condition of the civil community adjacent to the hospital reservation is a disgrace to American administration. The community is prosperous and could, under the supervision of a naval medical officer with proper authority, be made an example of modern sanitation for the entire Province of Cavite.

*Cape May, N. J.*—This establishment was turned over to the United States Public Health Service August 31, 1919, for use in connection with the work of the Bureau of War Risk.

*Charleston, S. C.*—The outstanding features of this hospital for the past year have been a gradual reduction of patients and some little increase in deterioration of buildings. New leaks in the tarpaper roofing of the older buildings are constantly appearing and need increasing attention. The underground steam piping system has deteriorated considerably. A good part of this piping has been insulated with a sort of paper composition. This has rotted badly, due to the dampness and heat, and in many places the pipes are rapidly corroding. Considerable stretches of small pipes are laid in the earth without insulation, and the exposure to the soil has caused rapid corrosion and deterioration. A great deal of replacement has been necessary.

During the year a deep-well pump was installed and completed on the hospital grounds. This pump has both steam and electric drive and will be amply sufficient for the normal water consumption of the hospital. The water carries a high percentage of sulphur and is not very potable at the present time. On account of the increased supply of water from other sources and the great lack of men to operate it, this pump will only be kept in condition to be



used in emergencies. During the year a new composition floor has been laid throughout the operating pavilion. This floor has proved very satisfactory and will add to the efficiency of the pavilion.

The building donated by the American Red Cross was completed and turned over to the hospital in July, 1919. This is an elaborate building and adds very greatly to the facilities of the hospital for recreation. However, on account of weather conditions and the limited number of patients, this building has not recently been put to full use. It is proposed to recommend in the near future that all the recreation plant of the hospital be concentrated in this building.

During the year the basement under the operating room was fitted up to be used as an office for the supply officer. The use of this basement for this purpose has been very satisfactory, with the exception that in heavy rainy weather the floor becomes damp from seepage, due to outside drains.

The commissary department has been very ably conducted under the charge of various commissary officers. The entire commissary department is rather large for present and future uses. This, however, is not an undesirable feature. It has been rather difficult to maintain a satisfactory ration which would be at the same time low in price. The average prices of foodstuffs in this locality seem to be considerably higher than in other places. However, the greatest attention has been paid to the elimination of any waste. The Hospital Corps school has been continued during the year with very good results. The greatest effort has been made to thoroughly instruct all hospital corpsmen in drills and theoretic and practical work. The contagious unit has a very large capacity and has been constructed in a very scientific manner. It is possible to care for a large number of various contagious diseases with the least possible risk of cross infection.

The question of the Marine Corps guard has been very trying. The guard has been twice removed, and at this writing there is no marine guard. On two occasions earnest letters have been written requesting the restoration of the Marine Corps guard but without avail. Without this guard the large grounds can not be properly patrolled and proper fire protection maintained. The absence of a Marine Corps guard creates a very distressing condition at this hospital.

*Chelsea, Mass.*—(see p. 222.)

During the year a ring of additional standard fire plugs has been placed around the hospital grounds. This adds considerable protection. The fire apparatus is efficient, consisting of six hose carts, two chemicals, and a ladder wagon. These have been maintained in working order by very frequent trials.

*Fort Lyon, Colo.*—The incidence of tuberculosis was reduced prior to the war to about three per thousand, but in view of the inevitable rise in morbidity to be anticipated during the stress of war the bureau, early in 1917, planned to enlarge the facilities of this establishment so as to allow for a ratio of 3.5 per thousand, which would require accommodations here for some 850 patients and for the necessary staff of attendants and civilian employees. Construction was begun in December, 1917, utilizing very largely the hospital force as well as outside labor, owing to the difficulties associated with the use of the latter, due to war conditions, the remote situation, etc. The first work was directed to the erection of a nurses' home, five wards and

dining room in the infirmary unit, dining room and five wards for convalescents, quarters for employees, and commissary department. Thirty "Ready Cut" cottages were to be set up and additions made to laundry and cold storage. In 1918 work was begun on enlargements of bakery, garage, enlisted men's kitchen, bachelor quarters for chief petty officers, sterilizing building, power house and boiler room in the dairy barn. Between April and September, 1919, work was begun on three sets of officers' quarters, a convalescent ward, nurses' infirmary, dispensary, marine barracks, commissary storehouse, and additions to other buildings. By December, 1919, all the above work was completed or nearing completion except two convalescent wards, two sets of quarters for chief petty officers, and eight cottages for civilian employees.

Congress has recently appropriated funds for the erection of a nurses' home, auditorium, chapel, operating room and laboratory, additional staff quarters, storerooms for baggage and linen, and for the improvement of roads throughout the 1,000 acres occupied by the institution.

During the most active period of building contracts were made with various establishments to care for some of our excess patients. Up to June 7, 1919, from 15 to 25 patients from the West Coast and Asiatic Station were treated at the La Vina Sanatorium, Calif., and were under the general supervision of the senior medical officer at San Pedro, Calif. Until July 22, 1919, from 20 to 40 patients were cared for at the Woodman's Sanatorium, Colo. For 18 months past from 20 to 30 patients, officers and nurses, have been treated at the Agnes Memorial Sanatorium, Denver, and the Cragmor Sanatorium, Colorado Springs.

The following table shows that the preparations instituted to house and treat an increased number of patients were justified:

Under treatment—		Under treatment (continued)—	
Apr. 30, 1917.....	275	Dec. 31, 1918.....	569
June 30, 1917.....	278	June 30, 1919.....	662
Dec. 31, 1917.....	274	Sept. 23, 1919.....	654
June 30, 1918.....	405		

During the summer of 1919, arrangements were completed which would permit the Red Cross to come on the reservation and carry on the same program of welfare, recreation, and vocational work now under way at Army hospitals in this district. A hostess house has been constructed. Several welfare and recreational workers and a representative of the Library Association are already stationed here and at work among the personnel. Rest rooms have been established in the town of Las Animas near the railroad station for the temporary care, pending the arrival of an ambulance, of patients who may arrive on the night trains.

A representative of the Bureau of Vocational Training is stationed here to look after the interests of that bureau in connection with discharged patients whose physical condition will permit them to take courses of instruction in the various educational and vocational institutions located in different parts of the country. The majority of the men are being located in institutions scattered throughout the Rocky Mountain district that they may continue to benefit from the prevailing climatic conditions.

The first case of epidemic influenza was admitted here on October 17, 1918. Two marines were transferred here for duty from the marine recruiting station in Denver. One developed the disease on the train and the other within 24 hours after reporting. In all 49 cases developed, in a period of about three months, the last case appearing January 14, 1919; of these—

	Deaths.
2 cases in commissioned staff.....	None.
2 cases in Nurse Corps.....	None.
3 cases in Hospital Corps.....	None.
8 cases in duty marines.....	2
10 cases in tuberculosis patients.....	2
24 cases in civilian employees.....	4

The State as a whole suffered severely from this direct communication with Fort Lyon. So many cases occurred, and the fatality was so great, that it became necessary to suspend many business activities, and close places of amusement, schools, and churches. During the early part of the epidemic, for a period of about two weeks, liberty for patients and duty men was suspended.

From the blood and tissues of the first patient to die of influenza a pure culture of streptococcus hemolyticus was obtained, and from this a vaccine was prepared. Virulent 24 to 48-hour growths on whole blood agar were employed, and vaccine was prepared in the manner in general use for making vaccines. It was administered as follows: First dose, 100,000,000; 200,000,000 for each of the second and third doses, administered at 48 to 72-hour intervals. About 600 persons on the reservation received this vaccine. In this group 10 tuberculosis patients subsequently developed symptoms of influenza, with two deaths. In both the latter, the records did not show that they had received more than one dose of this vaccine. Early in the use of the vaccine, it was learned that it could not be used in advanced cases of tuberculosis with cavity formations or empyemas. All other patients received it. With the exceptions noted above, no one who received the vaccine developed a typical clinical picture of the disease. Early in November liberty was granted again to patients and duty men, no restrictions whatsoever being made on free communication with the outside world, and furloughs were granted to those who applied.

During the height of the epidemic, 4 nurses and 10 hospital corpsmen volunteered their services to the board of health of Lamar, Colo., where the number and severity of the cases had gotten beyond control. They received their first dose on the day of their departure for this town. The second and third doses were given at 48-hour intervals after their arrival. They remained in close contact with all patients admitted, in a poorly ventilated building not adapted for hospital purposes, for a period of three weeks. None of this group of nurses and hospital corpsmen developed the disease.

At about the same time, the board of health of the town of Holly, Colo., requested the hospital to furnish them sufficient vaccine for some 300 school children. The epidemic in this town had assumed such proportions as to cause the suspension of all business activities and closing the schools. Three hundred and two school children were vaccinated, and the schools again opened. No case of typical influenza developed among this group. Illness occurred in four cases

with symptoms suggestive of influenza with temperature not above 101 F. Broncho-pneumonia did not develop in any of the cases. All Navy people on duty in Denver received this vaccine, and no cases developed.

It should be noted, that practically all the cases treated at this hospital were imported, the disease being well developed on arrival, or developing a few hours later. Three of the tuberculosis patients are known to have broken quarantine, the disease developing within 24 hours after their return.

These details regarding the incidence of this disease at the hospital are given for the reason that, unless it be conceded that the use of this vaccine resulted in a marked degree of protection to the different groups of persons who received it, no known cause can be assigned for the fact that some 600 people living on the hospital reservation, including some 500 tuberculosis patients, surrounded by towns that had been almost overcome with the disease and with whom free communication had been maintained during the greater part of the epidemic, escaped with so few cases.

*Great Lakes, Ill.*—The professional activities of this hospital have been much less than in 1918. The daily average of patients was 659 in comparison with 1,068 for 1918.

The storeroom in the west end of the basement being much too large for the purpose has been so divided by temporary wooden partitions as to provide light and airy office space for the general offices, while still retaining sufficient enclosed space for storeroom purposes. By removing three offices, this change made room on the first floor for a staff working room, board room, a staff library, and a large attractive reception room for visitors. These minor changes have effected a most desirable and economic arrangement in the entire interior of the main building, and were made by the hospital force and involved no structural changes.

The operating rooms are equipped with an independent battery lighting system in conjunction with electrical connection with the main power plant. The feasibility of this plan was well demonstrated a few months ago when the main power house was temporarily put out of commission while a very severe abdominal operation was being performed. It required only a few seconds to throw on the independent lighting system. A complete hydrotherapy outfit has been installed and is a source of comfort to those cases requiring such treatment. An eye, ear, nose, and throat examining room and operating room, modern in all respects, has been installed in one of the outlying units and will be kept in commission, as the main building does not have space to permit the installation of such a complete outfit.

The Red Cross convalescent house has been a source of comfort and convenience to the sick and to the relatives of those dangerously ill. An up-to-date vaudeville program, once weekly, and motion pictures twice weekly have been maintained throughout the year. In addition musicals, concerts, and lectures have been given for the benefit of the sick.

Ten bungalows, of a two-bed capacity, have been constructed on the site formerly occupied by tents and are to be used during the summer for tubercular and other lung affections.

*Gulfport, Miss.*—It would be difficult to find any years more worthy of contrast than 1918 and 1919—the two years that measure the life of this institution. The year 1918 was the last year of the World War. The personnel was made up chiefly of enrolled men. The berthing capacity of the camp here, as well as of camps elsewhere, was practically filled and the majority was made up of the class that is ordinarily not seeking enlistment in the Navy, coming from nearly all walks of life and desiring to return to civil life and take up their old occupations while the year 1919 has been a time of transition of personnel (enrolled men being discharged or placed on an inactive duty status) and of a greatly reduced Navy personnel. New men have enlisted with little or no training and, it has seemed, with a smaller conception of naval responsibilities and of the obligations of duty. This has been specially observable at this hospital in the case of recent members of the Hospital Corps. They have come here after little or no training, and in the absence of a sufficient number of leading men. It has been a situation of considerable difficulty for conducting the hospital. More disciplinary measures than usual have been necessary and undesirable men have been more in evidence.

The buildings here are showing, in their relatively good appearance and condition after nearly two years of occupation, the excellence of construction secured under the building specifications. It is also true that the comfort enjoyed by the personnel is a constant reminder of the good design made by the Bureau of Yards and Docks under the supervision of the Bureau of Medicine and Surgery.

There are some faults in design and construction. The quiet rooms are too small, the corridors outside of such rooms are too narrow for stretcher work in relation to the rooms, and the plastering in all the north end of the surgical building, with the exception of the operating room, is of poor quality, being readily scarred and broken. The same was true in the operating room, but after the fire in December, 1918, that room was made over.

The end of the year 1918, found this hospital greatly crippled by the fire which destroyed the mess hall and galley building, the personnel of the hospital then messing, at considerable disadvantage, in one or more of the detention camp buildings. The food was served from the galley of the detention camp.

This situation was placed before the bureau and resulted in the transfer here of a number of portable hospital buildings which were put up on the foundations of the old buildings by the hospital carpenters. In doing this it was found necessary to place several buildings together, to make certain changes to strengthen the structures, and, in the case of the galley, to modify construction in order to have a large protected overhead skylight that the heated air might have an exit. The roofing furnished with these buildings was friable and of little value. However, it was laid, and a roofing of good quality was placed over it. The galley and mess hall were connected by a covered way. Many of the fixtures of the old galley were found more or less serviceable, such as steam cooker, sink, etc. The result is a serviceable set of buildings capable of giving good service, but more or less rough and out of keeping with the other buildings. In replacing the main refrigerator it was found feasible to secure one that could be iced from the rear. One end of the portable building was reenforced and a door made through which ice is passed into the

refrigerator without having to be brought into the building. This has been found to be a great advantage.

Every window in the hospital is screened. The screens are galvanized iron mesh. Such material has a short life in this climate with its heat, high humidity, and excessive rainfall. Considering the circumstances, the screens have held together remarkably well, but the time is now at hand when if the hospital remains in commission, there will have to be a considerable amount of rescreening.

During the year 1919 the station was not visited by the swarms of mosquitoes common the year before. Such mosquitoes breed chiefly in the Louisiana swamps and are brought here by the wind. Their absence during the year 1919 has been ascribed to various causes, including the burning over of large areas of swamp land in the fall of 1918, and the excessive rainfall that began in September, 1918, and continued during the year 1919. There has also been a diminution in the number of mosquitoes of local origin. This has been due in great part to the work of the United States Public Health Service, draining land in this vicinity and oiling. It is very important for that work to be continued, but it appears that the continuance of the work is quite doubtful in view of the cessation of the war and the small amount of money the Public Health Service has for such purposes. This situation is mentioned in connection with the screening because screens represent the inner line of defense against mosquitoes which, it appears, will always be a factor in this locality.

The water supply remains unchanged since last report. A storage tank of 200,000 gallons gives a constant head and furnishes fire protection. The water is also found suitable for use in the power house. During the year 1919 report was made to the commandant, eighth naval district, requesting a routine inspection of the hospital boilers. Under the industrial manager of the navy yard, New Orleans, an inspector visited this hospital in April, 1919, tested the boilers, safety valves, etc., and found a satisfactory condition except certain steam gauges that appeared to be more or less inaccurate. Two new steam pressure gauges were obtained. They were adjusted at the navy yard, New Orleans, and the old gauges were also adjusted at that yard and returned to us.

All the wards are well lighted and well ventilated and heated. The entire hospital is well equipped, laundry and sterilizing apparatus are satisfactory, quality of food supply is very good as a rule, and the general and sanitary arrangements of all buildings are good, special attention having been given to floors.

There are no nurses' quarters at this hospital and, in view of the local conditions here, there was, until July, 1919, considerable difficulty in securing suitable accommodations for them. On July 1, 1919, owing to some change in management of the Great Southern Hotel, it was practicable to obtain reasonable rates there and since that time the nurses have been provided for at that hotel where they live in reasonable comfort and are much better satisfied than during the prior fiscal year.

In view of the separation of hospital buildings, including the buildings for contagious diseases, a suitable division of duties among such a small number of nurses has been difficult. In order to secure a proper situation here in that respect it is necessary for the staff of nurses to be made up of at least five in all, including the chief nurse.

It is believed that this subject should receive careful consideration in the bureau. But, in spite of all the difficulties, the nurses here have performed their duties very satisfactorily.

The year 1919 was not at all marked by malarial infections on this reservation. Practically all admissions for that disease gave a history of infection prior to arrival at this camp. In 1918 there were 844 cases reported and in 1919 only 475.

A good deal of the work of this hospital has been the freeing of recruits from hookworm. During the year 1919, there were more than 300 cases. Each case received at least three treatments. Of course, all of those men were infected in their home localities. However, the disease is quite common in this locality where 436 cases were reported during the year from Harrison County, the number so reported being nothing more than an index.

The relations of the Red Cross and this hospital have continued to be very cordial. During the year 1919, the work of the Red Cross has not been as extensive here as during the prior year. This was due to the reduction of naval personnel.

Early in 1919 a representative (Miss Louise Singley) of the Library War Service, with headquarters at New Orleans, visited this hospital and from that time exhibited the greatest interest in supplying the hospital with books, magazines, and newspapers. Such generous work can not be praised too highly. It continued during the year and was not relinquished until the Navy Department, Sixth Division, took over the activities of the Library War Service in relation to the Navy.

*Hampton Roads, Va.*—This hospital is of a type similar to hospitals constructed at other naval stations along the Atlantic coast at the outbreak of the war, all buildings being of the one-story wooden bungalow type on concrete pillar foundations, with beaver board lining in the interior.

As soon as it was found that the administration building could be occupied, the commanding officer assigned to the hospital requested that steps be taken to begin detailing the personnel. A number of American Red Cross units had been organized throughout the United States by the Medical Department of the Navy to be designated as "Naval Station hospital units" for duty at this type hospital. To this hospital was assigned the Columbus, Ohio, Naval Station Hospital Unit No. 5. This organization was of the first order and complete for the purpose, made up largely from graduates and undergraduates of the Ohio State University. All the medical officers were connected with this university. The organizer and head of the unit, Lieut. Commander V. A. Codd, Medical Corps, United States Naval Reserve Force, held the chair of assistant professor of surgery. This unit comprised one surgical director, one surgical assistant, one medical director, one roentgenologist, one bacteriologist and pathologist, one eye, ear, nose and throat specialist. These officers, with a number of graduate female nurses, formed the medical personnel of the unit. The nonmedical personnel consisted of electricians, carpenters, stewards, mess attendants, and a number of artificers. Upon the request of the commanding officer, the officers only were first ordered to the hospital and reported October 15, 1917. It was thought best that these officers should be here before the hospital

was completed, in order that each could supervise, watch, take charge of, and become familiar with his special organization, and by the end of the year the entire personnel of the unit having reported, the hospital was ready to accommodate such surgical cases as might be considered in need of hospital treatment, the surgical wards being among the first opened. Early in the year 1918 so much of the hospital as had been first planned was completed and opened for the reception of all classes of patients except insane, the capacity being 250 beds.

As the various other units of the base neared completion, with a continually increasing personnel, as predicted, the hospital was soon filled to capacity with an epidemic of mumps and cerebro-spinal meningitis, accommodations outside had to be sought, and there being none in Norfolk, and the naval hospital at Portsmouth being also full, request was made to occupy the Pine Beach Hotel, then being prepared for officers quarters. This request was granted and this hotel was assigned temporarily to the naval hospital at Hampton Roads. The main dining room, ball room, and other large spaces on the first floor were used. At this time the upper floors could not be used on account of lack of water pressure and other facilities. Later, when the water pressure improved, use was made of the second floor and all rooms that could possibly be used. The medical officers and nurses from the hospital were assigned for duty at this place, and the kitchen equipment at the hotel was used in addition to the hospital galley on account of the distance between the localities.

When it became apparent that more beds were absolutely needed at this hospital, plans were made to go ahead with other buildings originally planned; contract was awarded and construction was begun on the following additional buildings:

- Twelve ward buildings of a similar type with some minor, more modern improvements.

- Cold-storage plant and ice machine, additional provision room and office to the galley.

- One small laboratory building.

- Addition to storehouse, comprising bag and hammock room, and additional storage space for medical stores.

- Addition of a galley, mess hall and sitting room to the sick officers quarters.

- One additional building for nurses quarters.

- Enlargement of the garage.

- Enlargement of civilian barracks.

The construction work was concentrated primarily upon the ward building as it was important to have this completed at the earliest possible moment, and while work was being pushed on the wards, the other buildings were more slowly constructed.

In the meantime Mrs. William Sloane, of Norfolk, offered a beautiful residence with large surrounding grounds 4 miles from the base, and near the Norfolk Country Club, to the fifth naval district for use as a convalescent home for patients. This was considered very desirable in time of war, and being of more service to the naval hospital at Hampton Roads, due to its location, it was assigned to it for administration. It was the understanding, when this home was offered for temporary use, that it would be maintained by the American Red Cross, so that its status during the war was that it was administered by this hospital and maintained by the Red Cross



activities. During the entire time it was used it served its purpose well, only a selected class of cases being sent there—such cases as would be benefited by outdoor work in the grounds and on the gardens, as, for example, convalescent influenza, empyema and pneumonia cases. This place, known as Camp Sloane, was visited daily by a medical officer and inspected by the commanding officer of the hospital from time to time. Camp Sloane was made ready for occupancy by the Red Cross, which organization thoroughly equipped it, and was opened in June, 1918.

By the latter part of 1918 all the present buildings of the hospital were practically completed; the last building added under the Navy being the recreation building with canteen and barber shop, wash-room and sitting room for the use of convalescent patients. Until this completion of the hospital buildings proper full use was made of the Pine Beach Hotel as a necessity, and it was not until the latter part of the year the hospital was able to care for the local needs and relinquish the Pine Beach Hotel. The hospital now had accommodation for 750 beds and it was about this time that the country was swept by an epidemic of influenza. The hospital was again taxed beyond its capacity and, as the Norfolk hospital was in a similar condition, measures had to be taken again to relieve the situation. This was in a large measure met by ordering the U. S. Hospital Ship *Mercy* to Hampton Roads, which cared for a number of ordinary cases.

The condition of all the buildings at present is generally excellent, only the commissary building, which was among the first constructed, shows any marked signs of deterioration, and a request has been made for its repair. The present good condition of the buildings is due largely to the constant and early attention given by the chief engineer and the carpenter force of the hospital.

The sanitary condition of the buildings and grounds throughout the period of the war, and since the entire hospital was completed, has been generally good. The soil, while practically at the sea level and muddy is largely mixed with sand, causing rapid filtration and quick drying on the surface.

The water supply of the hospital is the same as the general supply at the naval operating base, coming from the Norfolk water supply and, barring a recent shortage of water, has been adequate and the quality excellent. This water is constantly and thoroughly analyzed, examined and reported on by the senior medical officer of the naval operating base.

*Key West, Fla.*—The examinations made in the laboratory numbered 885. After the hurricane of September 9 very little work was done in the laboratory for a month, owing to the damage sustained. One of the officer's quarters and various parts of other buildings sustained considerable damage, some of the walls being blown down, a chimney being demolished with consequent fire, etc. Repairs were not completed for months.

The total number of sick days for the year was 27,282, including 24,196 for diseases and 3,086 for injuries. There were 152 cases of venereal disease, being 15½ per cent of the total cases readmitted and admitted, and 4,029 sick days, or 14.76 per cent of the total number of sick days for all diseases and injuries.

On May 15, 1919, the naval hospital buildings and grounds were purchased and the title thereto secured by the Navy Department from the Women's Home Mission Society, Methodist Episcopal Church South, the total cost being \$50,000.

The naval sanitation force, organized as a war measure to protect the unusually large personnel of the Navy and Army at Key West against the markedly insanitary conditions of the city, was reduced from about 40 to a skeleton organization in December, 1918. During the first half of the calendar year 1919 repeated requests were made to the city authorities to cooperate with the naval force in maintaining a certain limited degree of cleanliness. It was impossible for the small naval force, gradually dwindling to one man and finally to zero, to cope with the immense area of Key West and environments so well covered by Surgeon G. M. Guiteras, of the United States Public Health Service, and his large force, together with a small force under the city authorities, during the period from March to November, 1918.

• So far as the naval hospital was concerned, the sanitation work included the attempt to lessen the number of flies, mosquitoes, and rats, and the prevention of a city project to establish a very undesirable slaughterhouse not far from the hospital. After the hurricane of September 9 and 10, 1919, a great quantity of débris, broken trees, limbs, shrubs, rubbish, etc., was hauled and dumped by the city trucks upon low ground just beyond the naval hospital reservation. Here and there loads of garbage were dumped in more or less hidden places in this low area, and it was necessary to call the attention of the city council to this menace to health and to request its removal by burning. This was done, the winds fortunately blowing very little of the smoke in the direction of the hospital.

An enormous quantity of garbage from the city has been dumped in the vicinity of the incinerator, which is located on the tract between the naval hospital and the receiving wireless station at the northeastern end of the island. This practice has been going on for many years, and to a greater extent since the hurricane of last September for the reason that the damage done to the garbage lighter, the wharf, and its approach has not been repaired, and the garbage from the southwest portion of the island has been carted to the incinerator grounds instead of being dumped at sea. The incinerator is not used on account of the garbage being mixed with refuse cans, junk, and all kinds of rubbish which would clog the incinerator.

A futile attempt is made to burn the garbage, but the remaining portion, whether exposed or buried, affords an ideal feeding and breeding ground for rats, and flies breed in the exposed garbage, while mosquitoes breed in rain water collected in the old food cans, etc. This menace to health not only continues but is really more serious than ever. The commandant and the medical officers have done all in their power to induce the mayor and the city council to remedy this evil which threatens the health of the personnel of the Navy and the Army located here as well as of the civilian population.

*League Island, Pa.*—Admissions during the year numbered 2,739, of which 2,229 were discharged to duty, 28 died, and 234 were invalided from service. Total sick days 107,016. The work of the laboratory amounted to 17,453 examinations; in the department of the eye 922 treatments were given; in the nose and throat department there

were 2,491 office treatments and 213 operations, 874 of the patients being new. In the X-ray department 2,498 examinations were made. The total of major and minor operations was 502.

The older buildings show deterioration. The new buildings are highly satisfactory, but there is some settling of the foundation, with consequent necessity for plumbing repairs. The arrangement of the administration building is very convenient, except that the presence there of the dispensary leads to a great deal of thoroughfare. The water supply is satisfactory, but as some of the high-pressure fire mains and the drinking water mains in the navy yard are connected there is always the danger of Delaware River water contamination. The steam for heating, cooking, and sterilizing is obtained from the power plant of the receiving ship. It always suffices for cooking, but not always for sterilizing and laundry work. When the commanding officer of the receiving ship is notified of the needs the necessary increase is always promptly supplied. The lack of a return line for condensed steam has serious drawbacks. The hot-water heaters are unsatisfactory. The indirect illumination of the wards is very satisfactory in the case of the very ill. Patients who wish to read must use bedside lights plugged into the walls. The arrangements in the commissary building are excellent and permit the feeding of a thousand men a day by the cafeteria system for those who can walk. The diet kitchen has been very ably conducted but is not large enough. Nested aluminum containers are more satisfactory than diet carriages, which are heavy and cumbersome. The present brig is too lightly constructed and some prisoners have managed to escape from it. It is in the building used for infectious cases, an undesirable arrangement. The various recreational features have been ably coordinated by the Red Cross official. The quarters and messing arrangements for nurses are highly satisfactory. The nurses complain of lack of facilities for taking exercise. An effort will be made to provide a tennis court for them. The limited number of hospital corpsmen and the urgent need of their presence in the wards has made it difficult to carry out a systematic course of instruction, though this is very important, owing to the inexperience of the majority. It is believed that civil employees could be advantageously replaced by enlisted men. The former demand excessive wages and are constantly giving up their jobs, nor is their service satisfactory. The average cost of rations has been maintained at 64 cents, which is very moderate, all things considered. The detail of a supply officer to the hospital has greatly expedited the work of the hospital and been a great convenience by permitting patients' accounts, etc., to be retained here.

Since January 1 there have been admitted to the hospital 411 patients suffering from influenza and 44 diagnosed as acute bronchitis, the greater number of which should be properly diagnosed as influenza. These cases have been admitted principally from the seamen's barracks and ships at the navy yard. The marine barracks furnished comparatively few cases. All cases of the disease appear to be mild in character, although 20 cases of broncho-pneumonia have appeared amongst the cases diagnosed as influenza.

*Mare Island, Calif.*—The year has been one of great activity and compares favorably with last year. During the past three months published records have shown that this hospital has exceeded all other naval hospitals in admissions and number of patients.

An enormous amount of indispensable renovating and repairing has been carried on and certain new building have been erected and put into service; e. g., laboratory buildings, Red Cross building, drying room for the paint shop, fire-escape passage and ramps, emergency lighting system for the operating rooms, psychopathic ward, two prison lock wards, a ship's store. Observation of the personnel passing through the institution seems to show conclusively that neither in mental, moral, nor physical make-up are the men now recruited for the service comparable to the standard maintained before the war.

The 44 wooden buildings within the hospital jurisdiction are not constructed so as to render them safe from fire nor are adequate means of fighting fire available. This has been a source of much anxiety to the medical officers and of frequent representation to the authorities of the yard. Local fire apparatus and fire escapes have been provided and drills are conscientiously carried out.

The lack of water pressure and the highly inflammable type of construction in the main building, as well as of the recently constructed annexes, remain an ever-present menace.

*New Orleans, La.*—Patients admitted, 104; readmitted, 142; remaining from last year, 17; discharged to duty, 1,027; died or invalided from service 78; deserted, 9; transferred, 90; continued, 51. In addition, 26 supernumeraries were cared for. The contagious cases treated were 227, of which 82 were influenza. The major operations performed numbered 35, the minor operations 95. The total number of specimens examined in the laboratory during the year 1919 is 4,449. In the X-ray department the number of patients examined was 548.

Repairs to leaking roofs and installation of wire screening have been effected. Needed renovating of the operating room walls has been much delayed. The installation of a vacuum pump in the boiler house, though approved by the bureau, has not yet been carried out.

*Newport, R. I.*—The hospital buildings are in good general condition. During the year all buildings have been painted outside and the interiors are now being painted. Infectious diseases are segregated in three pavilion wards which answer the purpose admirably, having a capacity of 130. All the hospital buildings themselves are well constructed, equipped, and, generally speaking, well lighted, ventilated, heated, and drained, but the condition of the heating supply and the condition of the sewer system call for replacements and improvements.

The food is excellent. Improvement is being effected in the preparation and serving of food. It has been made part of the duty of the dietitian to instruct the civilian cooks in the main kitchen. A diet board meets weekly to discuss improvements. Criticism is invited from intelligent patients. Measures are being taken to see that the meats are covered and basted while roasting, that they are not allowed to become dry when served, that they reach the patients on heated plates. A daily report of the condition of each item of food at each meal is made by the officer of the day to the commanding officer and faults and remedies are taken up by the diet board. Some quite definite improvements in equipment and methods are in

view. The diet kitchen contains sufficient working space and is suitably located, but it should be thoroughly renovated, tiled, and equipped with furniture up to modern requirements. The commanding officer has recommended against the installation of ice-making machinery, as such installation would be expensive both as to first cost and operation, and because ice can be purchased from the training station at all times for 10 cents per 100 pounds, which is very much less than cost of manufacture with new installation. A new laundry is the hospital's most urgent requirement.

Regulation Army stretchers and Stokes splint stretchers are used for transporting the sick and injured. There are nine motor vehicles used for ambulance purposes. They are of various types. The Studebaker cars bought during an emergency have not stood up well, being in constant need of repairing. The adoption of a standard model and make for all hospitals seems desirable. All orders for ambulances are given by the officer of the day to the chief master at arms, who details one of his force to go on all calls. In addition to emergency trips, a regular schedule is maintained for transportation of nurses, mail orderly, and for routine trips to and from the training station.

Experience during the war, when the details of cooks, chauffeurs, firemen, etc., were filled by the enlisted force, shows the desirability of continuing this in time of peace and substituting an enlisted force for most of the present force of employees. It is hoped that the bureau will secure authority for the employment of some civilian clerical force at naval hospitals. Permanent, experienced telephone operators are much to be desired instead of the constantly shifting detail of inexperienced convalescent patients. But the greatest need in this connection is for stenographers and typists. Much valuable time is wasted in preparing all matter for typewriting written out in long hand. To be without a stenographer in conducting any establishment nowadays is like being without telephones, electric lights, motor vehicles, and other modern facilities for carrying on business.

There are 4 chief petty officers and 45 other hospital corpsmen attached to the hospital. These are numerically sufficient for all duties now required, but owing to the lack of training and experience of many of them, they represent no more than two-thirds normal efficiency for the total number. It is realized that this condition obtains generally in the service and can not be remedied at present.

The number of major operations performed during the year was 227, and of minor operations 467; total, 694.

*New York, N. Y.*—Early in 1919 the hospital was filled to its capacity and more than 2,200 patients were under treatment in civil hospitals in New York and the vicinity. The admission rate continued to be high and in excess of the normal rate of discharge. The evacuation of the base hospitals in France and England supplied a steady source of admissions to this hospital in addition to those received from the ships and stations. Demobilization had begun and affected the admission rate by increasing it. Under these conditions the movement of evacuating the civil hospitals was begun. This evacuation was gradually accomplished by transferring large drafts of sick and wounded men to other naval hospitals. The transfers were conducted with reference to the clinical condition

of the cases and with due regard to the location of the homes of the men transferred.

The transfer of wounded marines to Army hospitals ceased in January, 1919, and the men under treatment in the various Army hospitals were gradually recalled. This movement of concentration was well under way in June, 1919. The total number of sick had fallen from 3,200, carried during January, 1919, to 800 carried in the month of June. The number of sick in civil hospitals had decreased from 2,200 to less than 100 during the same period. Certain cases still remained in Army general hospitals and in hospitals for contagious diseases in New York and Brooklyn.

At the close of the year 1919 all patients had been removed from Army and civil hospitals and there were approximately 600 cases under treatment in this hospital. The new buildings erected during the war had made it possible to admit all cases of contagious disease for treatment. The relief of congestion by interhospital transfer of large drafts of sick and wounded continued from February, 1919, until October, 1919, when the necessity for such transfers ceased. There were 6,118 cases transferred during the above period.

The extensive building operations commenced in 1918 were in part completed during 1919. The power house was completed and accepted in September, 1919. The new laundry was opened during the spring of 1919. Additional equipment was installed during the summer. A new laundry was also installed in the quarters provided for the nurses. The new X-ray department, located in the northwest portion of the basement of the main building, was completed during 1919. Increased space and new equipment were added by this alteration. The department now occupies five rooms and is modern in apparatus and appointments.

Alterations for the new dispensary in the southeast section of the main building were completed during the past year. Increased space was acquired by this change. Building E is occupied by the medical division of the hospital and provides ample room for the segregation and isolation of all cases of contagious disease. The maximum capacity of this building is 361 beds. Quarters for nurses were completed and accepted in August, 1919, and provide living accommodations for 120 nurses.

Total discharged during 1919, 1,513. Died at this hospital, 217.

The ambulance boat U. S. S. *Southport* was essential for the transportation of the sick, wounded, and dead throughout the first half of the year. The necessity for this vessel decreased in the autumn of 1919 and its services were finally relinquished on October 18, 1919. For the remainder of the year all transfers to and from the hospital were made by motor ambulances. There were 11,451 ambulance trips made in 1919 and the total mileage covered was 82,992.

An earnest effort has been made to raise the morale of the sick and wounded at this hospital. It has been found imperative that the mental depression resultant upon prolonged hospital treatment for severe wounds and serious illnesses should be actively combated. Entertainments consisting of vaudeville, music, and motion pictures were given in the hospital biweekly during 1919. The services of the navy-yard orchestra were secured for these entertainments once per week. This orchestra also played in the main hospital building

each Wednesday afternoon and during the latter part of the year it has also played in the recreation hall of building C. A large recreation hall is provided for the patients in the medical building E. A recreation hall was opened in building C for the use of patients under treatment for venereal diseases. There is a third recreation hall for hospital corpsmen in building E.

The Red Cross organization for the hospital is actively engaged in welfare work. A ward in building E has been assigned for Red Cross work. Patients are given instruction in toy manufacturing, bead work, etc. The Red Cross, Knights of Columbus, and Jewish Welfare Board formerly performed welfare work in the hospital until this particular work was placed under the Morale Division of the Bureau of Navigation. Motor-car outing parties for patients not entitled to regular liberty have been organized and given under proper authority. The efforts to raise morale have been perceptibly successful. Infractions of discipline have been greatly reduced and there has been a marked decrease in the number of summary and deck courts-martial.

During the year of 1919 there were 648 major and 1,706 minor operations performed. The operating room is now complete in general detail except that there should be a convenient space for a nurse's disrobing and wash room and also a shower bath and toilet for the use of the surgical staff. The general sterilizing apparatus has been found inadequate, having to be frequently overhauled and repaired. An expert was obtained to investigate the condition and he strongly recommended that a new sterilizing plant be installed. Accordingly a requisition has been forwarded for the same. During the month of May all wooden floors were replaced by tile, making the operating and adjacent rooms up to date.

The Carrel-Dakin ward was first opened with 28 cases consisting of empyema and necrotic bone cases. All new necrotic bone and empyema cases were put on this treatment and it has been found that they can be closed much more quickly under this treatment than by any other.

In the latter part of September one nurse and four hospital corpsmen were sent to Army General Hospital No. 3, at Colonia, N. J., and later to the Functional Reeducational Institute at 5 Livingston, Place, New York, N. Y., for special training in physio-therapy treatment. On October 6, the physio-therapy department was opened up in a small way. The result has been that the patients were able to go to duty much sooner after being on this treatment, thus reducing the number of sick days. The following is the type and number of treatments given for the three months that this department has been opened:

Massage and muscular training .....	4,038
Baking and massage .....	2,988
Electrical treatment.....	1,626
Cabinet baths.....	306
<b>Total.....</b>	<b>8,958</b>

At present there are two cases of leprosy under treatment in the hospital. In the pneumonias, polyvalent serum was given early in all cases with uniformly good results. The cases of contagious diseases were 737.

## Tabulation of genito-urinary cases treated during 1919:

Venereal.....	3,937
Dermatological.....	393
Nonvenereal diseases of the genitalia.....	290
Urological.....	93
Miscellaneous.....	99

A new operating room is under construction for the use of this department. One thousand doses of salvarsan have been given without a death or serious reaction. Bichloride of mercury has been used intravenously, in addition, with good results.

From January 1, 1919, to December 31, 1919, inclusive, 1,633 officer patients were admitted and 1,723 patients discharged: 202 major operations were performed; 35 deaths occurred; 182 officers were surveyed; 66 for leave, 41 for retirement, 35 for disenrollment, 8 for transfer and further treatment at Fort Lyon, 9 for transfer and further treatment at other hospitals, and 4 for return to duty.

The eye, ear, nose, and throat department has been subject to pressure of work throughout the year, as during 1918, due to the maintenance of the increased personnel in association with the cruiser and transport force in addition to the personnel of this district. This was particularly so in the first six months of the year before demobilization had become very far advanced. In view of the fact that this was the only convenient clinic with facilities for treatment of eye, ear, nose, and throat conditions, there was a very heavy out-patient clientèle that will not show on the official records of the hospital.

In the latter half of the year, with the placing of transports out of commission and the impending release of the many officers and men of the reserve force, "duration-of-war" men, etc., there was a rush upon their part to have the chronic defects of eye, ear, nose, and throat corrected prior to returning to civil life. This work was done on all the cases that were referred to the department although the majority of the conditions had existed long before entry into the service.

During the first eight months of the year the personnel of the department was almost wholly composed of those medical officers of the reserve force who had given up long established, lucrative practices in order to serve in the Navy. It is considered that great credit is due to these officers for the efficient and conscientious work they performed. Recently a readjustment has been necessary to cope with service conditions after release of these officers so that the efficiency of the department in these special lines will not be impaired. Some of the younger medical officers have been assigned to the department with the idea of having them take up this special work and it is considered that this station is admirably fitted for training men in this line as there is a broad variety of clinical material always at hand and they are able to have more intimate contact with the cases and more individual instruction than in any average post-graduate clinic.

Operations averaged for the first six months about 110 per month, with gradual decline to the present rate of about 75 to 90 per month. The total number of examinations in the X-ray department was 6,853. The examinations in the pathological laboratory in the year ending December 31, 1919, aggregated 28,514.



*Norfolk, Va.*—During the first part of the year the hospital was at the height of its activities. The last quarter, owing to the demobilization of the Navy and the absence of any very great outbreak of contagious disease, showed a marked decrease in activity.

The organization outlined in the report for the year 1918 remained in effect during the year. The personnel averaged about 55 medical officers, 250 hospital corpsmen, and 75 nurses until after demobilization. These numbers were reduced in the last quarter to about 40 medical officers, 85 hospital corpsmen, and 60 nurses.

Early in the year the use of tents was discontinued and the overflow of patients and the hospital corpsmen were moved to the portable houses which had been erected. Later they were moved to the new buildings.

New construction completed during the year is as follows: A two-story laboratory building with animal houses; 12 new ward buildings; a subsistence building; Hospital Corps quarters; quarters for nurses (converted from an H ward building), a garage; an enlargement of the power plant and laundry, and the bag room. The capacity of the new wards is 746 beds on 8-foot centers. To the power plant were added two Ames reciprocating engines (200 horsepower), four Heine water tube boilers (300 horsepower each), two Worthington boiler feed pumps, and two Burnham vacuum pumps. Additional equipment was installed in the laundry replacing the old and inadequate equipment. A railway siding was extended from the Atlantic Coast Line tracks into the hospital reservation. This is a very great advantage and convenience for the delivery of coal and other freight in carload lots. The end of this track adjoins the power house and is elevated so the coal may be dumped from the cars without labor cost. The expense formerly incurred from hauling coal in cars from the Seaboard Air Line siding in town is saved. The construction of the nurses' quarters also saves about \$10,000 a year in rent.

There were treated in the hospital during the year 8,123 patients, of whom 5,516 were discharged to duty, 49 died, 987 were invalided from the service, 37 deserted, 1,334 were transferred, and 200 were carried over to 1920.

The admissions to the contagious camp were small and not unusual in character. In 1918 this unit was moved from the tents into semipermanent bungalows where it was quartered until November 1, 1919. It was at this time transferred to the new cubical buildings. These two buildings give ample facilities for the isolation and treatment of all contagious diseases.

The following information on war wounded admitted to this hospital is compiled from the hospital files:

1918—Admitted.....	260
Transferred.....	59
Transferred (Walter Reed Hospital).....	4
Duty.....	8
Invalided from service.....	1
Transferred to Marine barracks for medical discharge.....	15
Carried over to 1919.....	173
1919—Admitted.....	414
Transferred.....	61
Transferred (Walter Reed Hospital).....	19
Duty.....	77
Invalided from service.....	9
Transferred to Marine barracks for medical discharge.....	251
Died.....	1
Carried over to 1920.....	6

The one death was that of John Archibald Weber, private, United States Marine Corps, admitted from the U. S. S. *Princess Matoika*, January 1, 1919, with bullet wound of skull. This wound had destroyed the left eye, and penetrated the left frontal lobe of the brain and left several small fragments of metal in the left frontal lobe. Brain abscess formed and was evacuated with improvement up to May 25, 1919, when meningitis developed resulting in death, June 10, 1919.

The major operations totaled 700. In the nose and throat department there were 348 tonsillectomies, 95 adenoidectomies and 140 submucous resections. There were 17,500 tests and examinations made in the laboratory during the year and 6,840 X-ray examinations. There were over 5,000 dental operations and treatments.

Rations for the year totaled 458,977, and the average number of rations per month 38,248; the average cost per person per diem, \$0.8862.

The librarian assigned to the hospital by the American Library Association was found to be very efficient and added a great deal to the comfort and happiness of the patients. On the withdrawal of the library association from this work, she remained on duty as an employee of the Sixth Division, Bureau of Navigation. Representatives of the Y. M. C. A. visit the hospital weekly and also give an entertainment in the Red Cross building each week. A Red Cross representative is assigned to the hospital in accordance with the plan agreed upon between the Bureau of Medicine and Surgery and the Red Cross.

A class in therapeutic training for wounded men of the service was started at the navy yard, Norfolk, March 3, 1919, under the direction of a medical officer of the hospital cooperating with the vocational advisor. Beginning with a membership of a dozen or so, this class gradually increased to about 45. The men, principally marines, were taken to and from the yard in trucks and spent two hours in the morning and three in the afternoon at classes. These classes were discontinued in August but a representative of the Vocational Board visits the hospital from time to time for the purpose of giving advice to those discharged from the service.

*Olongapo, P. I.*—The reports to the department concerning the deplorable condition of the hospital ship *Repose*<sup>1</sup> have been so numerous during the past two or three years that any further detailed account of its present condition appears unnecessary. It is sufficient to state that the deterioration of the entire superstructure decks has progressed to such an extent as to render the occupancy of many of the compartments therein a matter of grave danger, owing to the liability of collapse during a typhoon. The discomfort incident to the leakage of rain into wards and living spaces is now of minor importance compared with this liability to injury if not actual danger to life.

According to the latest information received here the Philippine Government has rejected the proposal to erect a hospital on shore at this station in exchange for the *Repose*. The commander in chief therefore has requested authority to expend the sum of \$50,000 for

<sup>1</sup> This vessel has for some years been permanently moored and serving as a hospital for the naval station.

such rebuilding and repairs on the *Repose* as will make her suitable and safe as a hospital. To date no information has been received here as to whether or not this request has been approved. If authority is granted to do this work it will be necessary to remove all the superstructure above the main deck, and after making this deck safe and water-tight, to erect a deck house of one story from bow to stern, the sides being flush with the sides of the ship itself and the interior being divided into the various compartments needed for a complete hospital of about 50 beds.

The work at the hospital has been very light during the last year. This is due to the fact that the ships on this station have been in northern waters most of the time and when they do come to the Philippines the first stop is usually at Manila or Cavite, and all hospital cases are transferred to Canacao. Furthermore, the complement of the station has been very small during this period and as no epidemics of any consequence have occurred and as the sanitary conditions of the station have been excellent the hospital admissions have not been numerous.

The major operations performed were 18; the minor operations 43. In the laboratory 1,833 tests, analyses, examinations, etc., were made.

*Parris Island, S. C.*—The hospital is still dependent upon the marine barracks for heating and lighting. During the past year the heating and lighting has been somewhat unsatisfactory due to the fact that an entire new heating system is being installed on the station, and there has been at times a meager supply of water. However, the hospital is always thought of first. Every consideration has been shown, and every effort has been made to give the hospital heat, light, and water even when other parts of the station had to do without.

During the year there were 414 operations performed, 97 of which were major operations—26 herniotomies, 69 appendectomies, 1 caesarean section, and 1 mastoidectomy. The remaining 318 were minor operations, a large number of which, 123, were tonsilleotomies.

Infectious and contagious cases treated, exclusive of venereal diseases, but including malaria, chronic tuberculosis, amounted to 404.

Patients remaining from last year 123; admitted, 258; readmitted, 1,388; discharged, 1,133; died, 23; invalided from service, 3; deserted, 2; transferred, 130; continued, 114. Total sick days, 3,414.

*Pearl Harbor, T. H.*—The hospital reservation occupies 41.5 acres advantageously located with reference to prevailing trade winds; but the buildings would be untenable in the event of war because of proximity to fuel-oil tanks and radio station, which would naturally invite attack. A portion of the land is to be used for an athletic field for tennis, baseball, basket ball, etc. Water is derived from an Artesian well 6 miles distant and supplied by an electric pump to a steel tank of 250,000 gallons capacity. The naval station also has an underground concrete reservoir of 100,000-gallon capacity for emergency use. The water from Artesian wells on the station is not potable. The buildings are of reinforced concrete with roofs of red asbestos shingles and lighted by electricity. No heating system is required and ventilation is by natural means. Nurses are housed in a one-story bungalow containing three bedrooms. Hospital corpsmen live in tents, an unsatisfactory arrangement for many reasons. The

operating room suite and genito-urinary suite are located in an annex, which contains all necessary facilities for anesthetizing, sterilizing, etc. The staff of the hospital consists of 3 medical officers, 1 dental officer, 15 members of the hospital corps, and 2 nurses. A recreation room with 850 works of fiction, magazines, etc., is available for the use of nursing attendants and convalescent patients. The surgical operations for the year numbered 84. In 1919 the admissions and readmissions for disease were 314; for injuries, 36.

*Pensacola, Fla.*—The activities of this station have been greatly reduced owing to the demobilization following the signing of the armistice, and in consequence the number of patients treated at this hospital has been reduced from that of the year preceding. During this period there were 122 patients remaining from last year, 23 admitted, and 1,081 readmitted to the hospital, 1,438 in all, of whom 1,046 were returned to duty, 253 to change of diagnosis, 6 died, 40 invalided from service, 41 transferred, and 44 remained in the hospital.

The surgical work consisted of 57 major operations, 160 minor operations, 151 operations on the eye, ear, nose and throat, 10 lumbar punctures and pleural aspirations, and 232 intravenous injections of arsphenamine. No deaths resulted from these operations.

All contagious diseases were isolated and properly handled. The excellent sanitation of the station under the direction of Surg. Corbin J. Decker, United States Navy (retired), has almost wiped out malarial diseases.

The following X-ray examinations were made: Teeth, 181; bones, 183; kidney, bladder, and ureter, 16; lungs, 56; sinuses, 7; diseases of bones and joints, 17; gastro-intestinal tract, 20; mediastinal diseases, 5; cranium, 1; foreign bodies, 4; empyema pockets, 1; and hearts, 2. In the laboratory the examinations totaled 2,565.

The commissary department has been handled very satisfactorily and there have been no complaints, the food being of good quality and quantity, and excellently prepared and served. The ration for the year has been \$0.984. Difficulty has been experienced in securing competent help in replacing enlisted personnel with civilians. The galley ranges are showing the effect of wear, and will have to be partially replaced at an early date.

The steam-heating plant continues to operate satisfactorily. Owing to the shortage of coal this fall a great many of the live oak logs left by the contractor along the east wall of the grounds were sawed and split and are being used as fuel with the coal. This wood makes a good fire, and has saved coal to about the extent of 50 per cent.

The grounds have continued to improve in appearance and attractiveness. The vegetable garden begun last spring has furnished the hospital mess with vegetables amounting to the value of \$256.85. Owing to the very high prices of vegetables it is recommended that the garden be kept up.

*Philadelphia, Pa.*—On February 14, 1920, the buildings and entire equipment were loaned to the United States Public Health Service. During the year 1919 the patients admitted and readmitted were 3,662; remaining from previous year, 393; discharged to duty, 2,463; died, 53; invalided from service, 166; transferred, 202; continued the following year, 224. (These figures include supernumeraries.) The contagious cases treated were 634, venereal cases accounting for 236.

Surgical operations performed 518, with 3 deaths. In the laboratory over 5,500 tests, examinations, analyses, etc., were made.

During the year a new hot-water heating system and a new water supply were installed, the latter including a water tower and tank, with storage capacity of 40,000 gallons. A new X-ray department was fully equipped.

*Portsmouth, N. H.*—On January 1, 1919, there were on duty at this hospital 14 medical officers, 2 pharmacists, 24 nurses, 46 hospital corpsmen and 18 civilian employees. The number of patients was 121.

At the close of the year there were 75 patients under treatment, the number of medical officers was 7; there was 1 pharmacist, 25 hospital corpsmen, and 13 nurses.

The total number of sick days for patients on the active list during the entire year was 48,264. Eighty-six supernumeraries with 1,303 sick days brought up the figures of sick days to 49,567, giving a daily average of 135.8

The cases of infectious disease numbered 136. Out of the total number of patients there were received 192 with diagnosis undetermined, 120 with syphilis, 85 with gonococcus infection, 84 with tonsillitis, 65 with appendicitis, 64 with fracture, 50 with hypertrophy tonsil, 43 with rheumatism, 43 with hemorrhoids, 39 with hernia, these being the 10 groups coming first in numerical importance.

The laboratory reports 2,951 tests, examinations, etc., during the year. The X-ray department reports 703 pictures taken. There were 70 major and 85 minor operations during the year.

In the beginning of the year the work of the psychiatrist of the station was very extensive, due to the great increase of prisoners at the naval prison, among whom were many mental defectives.

After the arrival of female nurses, specially trained in psychiatric nursing and, also of specially trained hospital corpsmen, the work in the psychiatric wards was organized and, for a while, everything ran along very smoothly and very satisfactorily. The inmates seemed to be very content and assisted in fixing up the grounds immediately surrounding the ward buildings. They also seemed to be very anxious to work in harmony with the attendants and to make the department a success. This was largely due to the personal influence of the psychiatrist over the inmates, also due to the fact that most prisoner patients were clearly mental cases, which eventually had to be surveyed, and were recommended for discharge from the service. However, as later on, some cases were not disposed of in this way, but were returned to the prison, the demeanor of many of the men changed. Another reason for this change was the fact that the psychiatrist was detached from the institution and placed on inactive duty in July.

As a result of the release of the reserves and the discharge of the duration-of-war men, the marine guard at the station was reduced to such an extent that only one sentry was available instead of two, as formerly, to guard the prisoners. To add to these conditions it was found out that a hospital corpsman attached to the psychiatric wards, a pharmacist's mate first class, and possibly some of the nurses, gradually allowed the men more freedom than the rules permitted. As a result of certain very serious irregularities the psychopathic ward was closed and all patients were transferred to the barred prison ward in the main hospital. The ordinary prisoner patients had,

sometime before this, been returned to the prison to be taken care of by their medical officers, in consequence of the fact that the shortage of marines here made it also necessary to withdraw the guard from the prison ward. This condition of an inadequate marine detachment still exists at the present time and only seriously sick, bed and operative cases from the prison are admitted into the hospital for treatment.

*Puget Sound, Wash.*—During the winter and spring, the demobilization orders decreased the enlisted personnel on the station by about 10,000 men. The training station at Puget Sound and the training station at Seattle have been closed during the year; but with the coming of the Pacific Fleet in September, together with 6,000 civilians, employees of the navy yard, ammunition depot, torpedo station at Keyport, who avail themselves of the hospital, in case of injuries, all available space has been taken up during the autumn. We have also had from 25 to 30 tents occupied during this period. The hospital has been able to cope with all emergencies with the use of its 50 tents. The hospital has but one wing and the eight temporary outbuildings have but one story. Had the roof covered two stories, as is the case at most hospitals, we could dispense with the tents.

The sanitary condition of the station has been satisfactory. We were free from contagious diseases during the summer months, but, with the coming of the fleet in September, we have had the usual number of cases of measles, German measles, scarlet fever, diphtheria, cerebro-spinal fever, and smallpox. The different epidemics of the above diseases in the fleet were the result of taking new recruits aboard from the cities along the coast in place of having them pass through the isolation period in a training camp.

During the year, all the reserve medical officers on duty at this hospital have been disenrolled to inactive duty, and officers of the regular service ordered to relieve them. We now have nine medical officers of the regular service, one temporary, two regulars ordered, and one dentist (temporary service). All but one of those who passed the examination for the regular service refused their commissions when they arrived, on account of the almost impossible living conditions on this station and the disparity between service pay and private practice. Two retired medical officers who were on duty here have been detached and ordered home.

The junior officers have been given, in addition to routine hospital work, an opportunity to do surgical, medical, venereal, X-ray, and laboratory work in rotation. They have all taken great interest in their work and are well qualified for independent duties.

The nurses, as opportunity offers, are requesting their release from the service on account of the small pay they are receiving—nurses are receiving from \$6 to \$10 per day and expenses in the surrounding cities. The majority of the nurses like the service and would remain, if their pay even approached that of civil life.

During the early part of the year, we had a well-trained force of men on duty here due to the courses of intensive training and instruction that these men had received throughout the war. When the demobilization of the Hospital Corps began in the latter part of the summer and autumn, the lack of trained men began to be felt. On November 1, when demobilization was complete, we had five trained men on duty aside from the four chief pharmacists who were

on special duty. The remainder of the complement were men who had had but a few weeks' training at the Hospital Corps training station at San Francisco, or men whom we had rated from the seaman or fireman branches. These untrained men, most of them mere boys, had to be placed in charge of out-wards without even female nurses to supervise the work. These men have received and will receive courses of intensive training and instruction. This instruction has been planned to supplant the courses at the Hospital Corps training schools and has been made as practical as possible. Medical officers, nurses, and chief petty officers are acting as instructors along all lines of work. The working details have been changed monthly in order that each hospital corpsman may gain experience in his various duties.

It is believed that the change from a trained personnel to that of an untrained and less desirable one has been more keenly felt at the hospital than in any other department of the service.

The dietitian has been placed in charge of the preparation of all food in both galleys. Her services have been inestimable, especially in the preparation of and in the serving of special diets. A room adjoining the galley in the main building has been fitted up for her use. With the dietitian as official taster and preparer of food in the hospitals, there is seldom a complaint from the patients and there is certainly a great decrease in waste. Miss Richardson, the present dietitian has had a year's experience along this line with the Army in France.

The hospital is badly in need of a laundry. It is difficult to get the laundry done at any price, and more difficult to get good work done and to have it done on time. Our laundry bill for the year has been \$6,847.10, and for 1918 was \$5,842.71. It is recommended that a laundry building be provided for the hospital during the coming year.

There are no quarters of any kind for the medical officers at the hospital, or on the station. Members of the staff are forced to live in most undesirable quarters in Bremerton, or Charleston, or commute to Seattle. This condition of affairs has created much dissatisfaction among the medical officers, and was one of the causes why so many of the desirable candidates declined commissions in the regular service during the year. It is strongly recommended that suitable quarters be built on the hospital grounds for the medical officers, and in this climate the bungalow type would be preferred.

With the coming of the Pacific Fleet, the major portion of which will base on Puget Sound, it is absolutely necessary that the hospital should be completed, the wing added, and an overhaul period be allotted to completely eradicate the defects. All decks and wood-work are of soft wood that easily splinters and also easily takes up all stains, making poor floors for hospital buildings. All outbuildings will require a liberal coating of paint inside and outside, during the coming summer.

There is need for a suitable place of recreation for hospital corpsmen, nurses or patients. The wet season of many months' duration precludes out-of-door recreation, or exercise, and it is urged that suitable provisions be made for the three classes of persons mentioned. This could be accomplished under one roof as is done at nearly all naval hospitals now in the "convalescents home."

The surgical operations under general anesthetic for the year were 238; those under local anesthetic, 136; the operations on eye, ear, nose, and throat department were 128; laboratory tests and examinations, 4,218; X-ray examinations, 6,492; dental treatments or operations, 365.

*San Diego, Calif.*—The dispensary of the United States Naval Training Camp, San Diego, Calif., was discontinued on May 20, 1919, and the hospital was placed in commission on the same date. Three buildings have been added to the hospital equipment since that date, and numerous minor alterations and improvements have been made. A large amount of concrete work has been done in paving the walks, garage, and driveways in the vicinity of the hospital. This has been necessary because of the clay condition of the soil, which rapidly becomes impassable during rainy weather.

There is at present space and equipment for the handling of about 550 patients. Medical and surgical equipment is on hand to continue all necessary hospital work until the completion of the new hospital. While the entire plant is unsatisfactory in certain ways, yet there would be little justification for extensive alterations and improvements when the temporary nature of this hospital is considered. There are at present 312 patients under treatment, with an active surgical service, a fairly well-equipped X-ray department, and a satisfactory eye and ear department. The laboratory is less satisfactory than any other department of the hospital. A chief pharmacist's mate of considerable ability is doing excellent routine work, but the services of a well-trained medical officer are urgently needed. With the exception of the need for a laboratory medical man the medical personnel is satisfactory in every way, and good professional work is being done in all departments.

On July 1, 1919, the new nurse's quarters, facing on Balboa Park, were placed in commission, and since that time a satisfactory equipment of furniture has been installed. The quarters are satisfactory in every way and the nurses are well contented.

The Navy Department has made a very fortunate decision in determining to place the marine base and training station here. During the winter there are a few rainy days, but during a very great part of the year we can depend upon sunshine for a number of hours daily. If the present plan for handling target practice and winter maneuvers in the vicinity of San Diego are carried out, the importance of this station and hospital, will be greatly increased. The plans for a 300-bed hospital will prove somewhat inadequate unless we can retain permanently the isolation section, to the east of the street railway tracks, for isolation and epidemic work. This section can accommodate about 300 patients, and complete isolation can be easily arranged for. The entire group of wards and tent paddocks is surrounded by a high wire fence. Each paddock is itself surrounded by a wire fence and is complete in itself, having shower baths, heads, etc. Five barrack wards allow for further segregation, and a well-equipped galley and storeroom complete the equipment, so that in case of necessity it could be used as a separate unit. This isolation camp is about a quarter of a mile from the site of the new hospital, and could be administered as a part of that institution in case of necessity. The bureau should give very serious consideration to the question of the need for larger hospital accommodations



here. When the training station, with several thousand boys and the marine camp with several thousand men under training are completed, it is probable that a hospital of at least 600 beds will be needed, or at least accommodations for that number.

*Wards Island, N. Y.*—This hospital was planned as a war measure with a view to relieving inevitable congestion of patients at the naval hospital and temporarily affiliated institutions in greater New York. Contracts for building were given out in September, 1918, and, in accordance with them, building operations had to be carried out, though difficulty in obtaining material and in executing the work because of strikes led to long delays. The sudden cessation of hostilities immediately operated to relieve the demand for hospital accommodations, and meanwhile the facilities for more extended service at the United States Naval Hospital, New York, had been fully developed. The hospital was commissioned May 10, 1919, and began receiving patients on May 12. By the end of the month 337 were comfortably installed, and in a few weeks there were between 500 and 600 patients under treatment at the United States naval hospital, Wards Island. This was the average number until the end of July. The pressure for hospital accommodations being now greatly relieved, demobilization was considered, and by the end of August the patients had been distributed to other naval hospitals.

As planned and put, up the hospital promised to be one of the most useful establishments belonging to the Medical Department, through its admirable construction, extent, and equipment. The accommodations allowed for 1,420 officers and men as patients and 80 nurses and 200 hospital corpsmen in attendance and everything in the way of messing, laboratory, and operating facilities was provided.

The total number of patients received at the hospital during its period of service was 1,175. On going out of commission the patients were transferred to other naval hospitals in accordance with their requirements or wishes. All removable equipment and all stores have been removed and redistributed to advantage to other hospitals and stations.

*Washington, D. C.*—During the year much repairing and overhauling has been done on the buildings and work begun has been completed in the case of the two-story laboratory building, the garage, the coal shed in connection with the new power house, mail room, issue room, wash room, bag room. The laundry facilities were increased by the installation of one motor-driven, flat-iron worker, one motor-driven, two-compartment washer, and two motor-driven extractors. New quick-acting valves were also provided on the old as well as new washers. The contractor furnished the machines and the hospital force connected them to the hospital system. Two motor-driven 24-inch exhaust fans were installed in roof of the laundry to aid ventilation, which was very poor, but has been much more satisfactory since these fans were put in.

The refrigerating plant installed last year is operating satisfactorily, but the output of ice is not sufficient to meet the demands of the institution.

A live steam heater was installed in the hydrotherapy room and steam furnished to it direct from the power house in order to regulate the pressure between the city supply (cold water) and the pump pressure (hot water). At the present time this is working satisfactorily. This work was done by the hospital force.

Four chemical engines mounted on wheels, four fire reels with 500 feet of hose, and four 40-foot extension fire ladders have been procured and put in the most advantageous places.

The old animal house to the east of the nurses' quarters has been fitted up as a fire house, containing two chemical engines and two hose reels. Five new fire plugs have been installed.

The present building is entirely too small for the accommodation of sick officers at this hospital. It is recommended that it be extended to the south. During the past year it has been frequently necessary to put two officers in a room. But for the fact that a great many convalescent officers preferred to live in the city it would have been impossible, in many cases, to take care of the number of officer patients in that one building.

The roads on the reservation have been repaired and at the present are in excellent condition. The grading, sodding, and seeding necessary around various new buildings have been done. The terrace along the concrete wall, main entrance, south to Hospital Corps quarters on Twenty-third Street, has been completed. Plants to the number of 3,000 are being propagated and grown for use on the grounds.

*Yokohama, Japan.*—During the summer an epidemic of cholera started in the Philippines and spread over portions of China but was effectively stopped in Japan. The Japanese deserve great credit for enforcing measures that practically kept it out of the country. A number of isolated cases slipped through the quarantine barriers, but each case was promptly recognized and the different points of infection were stamped out.

Eighteen American Red Cross units have been taken care of on their passage to Siberia from the United States. In all, 298 individuals passed through the hospital. A special mess was established for them and they were not only well cared for as far as quarters were concerned but were supplied with excellent and wholesome food and there was practically no sickness. The Government was under no expense by this arrangement and the Red Cross saved several thousand dollars.

On August 26, 1919, 12 Czecho-Slovak soldiers were admitted from the steamship *Ileffron* which was damaged in a gale while en route from Vladivostok to Trieste. All of the men were sick and in charge of the American Red Cross. One man died of general tuberculosis; the rest, except one, were returned to their ship. All men improved in health. One soldier was operated upon for cholelithiasis and six large stones, one of which was impacted in the cystic duct, were removed. The man made a complete recovery. Another operative case for extensive osteomyelitis of the tibia still remains in the hospital as a supernumerary. He will be sent home by the American Red Cross when he is able to travel.

An excellent X-Ray machine has been installed and adds greatly to the efficiency of the hospital. The laboratory is in good running condition. Wassermann tests and all the ordinary clinical tests can be properly performed.

The hospital has also been equipped with a complete outfit of modern instruments for general and special uses. A baking apparatus, a high frequency and an electric tankless air compressor have also been installed.

For the amusement of the men, the old marine quarters in the annex building have been turned into a recreation room. Reading matter and a victrola are kept there. The hospital personnel have been encouraged to play tennis on the most excellent court. Racquets and tennis balls were obtained on requisition.

The buildings are in good condition, except the roofs, and they should be repaired during the year. The only building which is screened at present is the commanding officer's quarters. If the main and annex buildings and the kitchen were screened, it would add much to the comfort of everybody, as the mosquitoes and flies are very annoying during the summer and fall months. The wards and halls in both the main and annex buildings could be made much more attractive by the installation of an indirect lighting system.

#### NAVY YARDS, STATIONS, RECEIVING SHIPS, ETC., AT HOME AND ABROAD.

*United States Naval Academy, Annapolis, Md.*—The following statistics represent the work done in the medical department compared with those of the previous year:

	1918	1919
Number of admissions, all cases.....	4,134	2,384
Number of readmissions, all cases.....	228	142
Admissions and readmissions for diseases.....	4,155	2,220
Admissions and readmissions for injuries.....	207	306
Total sick days.....	8,153	3,369
Total sick days for diseases.....	7,800	2,844
Total sick days for injuries.....	353	525
Average number of admissions per day.....	22.3	9.504
Average number of admissions for diseases.....	21.4	8.065
Average number of admissions for injuries.....	0.97	1.440
Percentage of sick.....	0.718	0.357
Average complement.....	3,110.2	2,660.6
Number of cases transferred to hospital.....	2,912	1,631
Number transferred for injuries.....	135	190
Disease causing greatest damage—Influenza, sick days.....	4,070	303
Number of admissions and readmissions.....	1,984	167
Gastro-intestinal diseases, midshipmen only:		
Admissions and readmissions.....	202	38
Number of sick days.....	209	54
Football, midshipmen only:		
Admissions and readmissions.....	15	75
Number of sick days.....	41	151
Number visits of midshipmen to sick quarters.....	50,244	24,037
Damage in sick days.....	5,714	1,903
Damage in excused days.....	17,112	4,606
Average number of visits per day.....	137.6	65.85
Average number of midshipmen.....	1,772	2,008
Average number reserve officers.....	447	
Number of men Invalided from service.....	64	32
Number of men died.....	2	3
Number of vaccinations.....	1,421	720
Number antityphoid inoculations.....	1,694	745
Number urine examinations.....	213	3,546
Number blood examinations.....	2	2
Number feces examined.....	9	152
Number cultures examined.....	42	147
Number smears examined.....	28	10
Number sputum examinations.....	15	45
Number milk examinations.....	3	
Number of house visits by medical officers.....	7,271	5,072
Average daily visits.....	19.7	14
Office visits at dispensary.....	4,927	5,234
Confinement cases.....	30	40
Number of prescriptions filled.....	11,311	11,092
Average per day.....	31	30
Physical examinations for civil service.....	323	845
Annual physical examinations—midshipmen.....	1,461	2,108
Annual physical examinations—candidates.....	1,035	774
Preliminary physical examinations—candidates.....	174	63
Officers' annual physical examination.....	138	201
Number men enlisted.....	27	24
Number men reenlisted.....	85	66
Myopia cases.....	44	58
Hypermetropia cases.....	85	69
Astigmatism cases.....	102	56
Other causes.....	21	6

During October the old ice-cream freezers were replaced by the modern brine type which are more economical and sanitary, doing away with dipping by hand. Synthetic cream, prepared from milk powder and fresh butter with a Sharpless emulsifier, has been in use since August and has furnished a sterile, sanitary cream at an average cost of \$1.25 a gallon. It has been recommended that an ammonia line be led to this room to supply the emulsifier and freezers with ammonia coils. A hardening box should also be installed for ammonia coils. A hardening box should be installed for packing the molds after filling, thus doing away entirely with the use of cracked ice, which keeps the floor wet and sloppy.

The Chief of the Home Economics Office of the Department of Agriculture analyzed the Naval Academy dietary data during October and reported to the commissary officer that the quantity of food provided was much greater than needed, especially in meat and meatlike foods. The ration yielded 5,062 calories per day per person, of which vegetables and fruits contributed 17 per cent; meat, milk and eggs, etc., 32 per cent; cereal food, 23 per cent; sweets, 13 per cent; and fats 15 per cent. The proportion of cereal used was much below the average, and meat, milk and eggs, etc., above what is considered essential. The meat group was fully as great "as a wood chopper engaged all day at very severe work in the woods in winter would consume."

As a result of this report the commissary officer recommended a change in the routine of meals, concurred in by the medical officer, requesting that there be a midday instead of a late dinner and a supper at night, thus permitting a material increase of cereal foods and vegetables. This has been done and at present there is a more balanced and more economical ration.

The Government farm has continued to supply daily approximately 500 gallons of excellent milk. As a result of the inspections by the Bureau of Animal Industry the highest score during the year for method and equipment was 95.2 and the lowest 92. The lowest bacteriological count was 3,000 per cubic centimeter for hand milking and 2,000 bacteria per cubic centimeter for machine milking. Machine milking was installed during January.

Sanitary drinking fountains had been installed in part of Bancroft Hall and recommendation was made to complete this installation. These fountains have now been delivered and will soon be in place. An additional filtering plant has been included in the annual estimates but not yet approved. The station plant for settling and filtering was for 400,000 gallons daily. There are now used daily 850,000 and the water though potable has a heavy deposit of iron salts.

The health of the midshipmen has been unusually good, as shown by the low percentage of sick and the reduction in attendance at sick call, which was only half that of last year, although there has been an increase in the number of midshipmen. Contagious diseases have been sporadic, with the exception of a mild epidemic of diphtheria in the spring, when 15 cases were sent to the naval hospital. A laboratory team from the United States Naval Medical School, Washington, D. C., found 11 carriers and 415 nonimmune by the Schick test. These were immunized by the toxin-antitoxin method. Ringworm and impetigo have prevailed, as they have done for

years, in spite of every effort to stamp out the infection by sterilizing clothes, water-closet seats, "gym" suits, "gym" mats, and apparatus bars and handles. On routine examination of stools of members of the entering class two cases of hookworm were found and sent to the hospital for treatment. During the summer there was the annual renovation of Bancroft Hall and sterilization of mattresses while the midshipmen of the three upper classes were on the cruise from June 7 to August 28, and on leave from August 29 to September 29.

The annual physical examination of candidates for entrance to the Naval Academy began on June 10, 1919. The percentage of rejections by the permanent medical examining board averages less, owing to the system of holding preliminary physical examinations of candidates during the year. The most common causes of rejection were as follows: Defective vision, deficient color perception, albuminuria, and underweight.

Total number candidates examined.....	774
Number accepted—midshipmen.....	653

Number candidates rejected.....	121
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The causes for rejection are classified as follows: Defective vision, 26; deficient color perception, 19; underweight, 16; albuminuria, 13; flat feet, 9; heart disease, 8; defective hearing, 6; deformities, 4; defective teeth, 2; enlarged thyroid, 2; skin disease, 2; hydrocele, 2; and one each of the following causes: Disease of the eye, hypertrophied tonsils, hernia, varicocele, pulmonary tuberculosis, history of mental derangement, history of enuresis, underheight, obesity, venereal disease, glycosuria, phimosis.

There were 213 candidates requiring dental treatment before acceptance. Two candidates were rejected on account of defective teeth and three were rejected in part because of defective teeth. As a result of the examination by the gymnasium medical officer with the universal dynamometer, the number of midshipmen who failed to meet the requirements for the entering class was 630. The present number of those on the weak squad is:

Midshipmen:	
First class.....	32
Second class.....	24
Third class.....	48
Fourth class.....	385

The routine of compulsory exercise comprises the following:

All of the entering class are given one hour a day of Swedish drill during the summer and are taught to lead and command.

During the academic year each battalion of the fourth class is given a week of gymnasium drill (five 1-hour periods) every month; 20 minutes of each of these drills is devoted to Swedish exercises.

The third class is divided into two sections which alternate 1 hour of gymnasium drill each week, 20 minutes of which is Swedish.

The second and first classes have 1 hour a week gymnasium drill, 20 minutes of which is devoted to Swedish.

Weak squads are given Swedish drill 1 hour each week.

It was recommended that midshipmen of the first class who failed to make the average for five muscle groups be considered as not qualified physically.

Personal and general hygiene are taught to the plebe class, soon after entrance. One lecture on venereal diseases is given to the first class and one to the fourth class each year. Each midshipman attends a lecture on venereal disease on entrance and one in his first class year before graduation. The regular lectures and examinations in hygiene are given to the members of the first class. This autumn a special exhibit on social hygiene, under the auspices of the Sixth Division of the Bureau of Navigation, was held for all midshipmen and the personnel of the station. It was considered most helpful and instructive as well as dignified in its presentation. Moving picture films were shown having for their aim moral instruction as well as education regarding venereal disease.

On June 12, the postgraduate school was opened in the building formerly used as a marine barracks and for midshipmen quarters until the new wings of Bancroft Hall were completed. The building was completely renovated and is in excellent sanitary condition. As a part of the daily routine physical exercise in the open air is carried out, which is to be commended. The gymnasium medical officer, Lieutenant S. B. Solhaug, Medical Corps, United States Navy, made a careful anthropometric study of these postgraduate officers soon after they reported. The report submitted was a convincing proof of the necessity of requiring officers to keep up their physical condition. Since the annual physical tests were first instituted, the changes in the requirements have been toward a more constant form of exercise. It is believed that a few minutes of daily setting-up exercise, similar to Walter Camp's "Daily dozen," in use in Washington during the war, would be productive of better results than the present weekly requirement of 2 hours' exercise.

At the beginning of the academic year it was considered advisable to have the medical officers who perform the family dispensary service do only this duty. It has been the custom in the past to have the medical officer of the day take the afternoon calls but this led to a frequent change in doctors, causing dissatisfaction. The medical officer who has specialized in eye, ear, nose, and throat work has an afternoon dispensary service and in the morning examines the eye cases at the midshipmen's sick call and attends to special cases at the naval hospital.

The dental officers gave 8,724 treatments during the year to 2,218 patients. In addition, all candidates were given a dental examination and those who passed had dental records made. Dental authorities agree that the period of adolescence predisposes to dental caries and that the teeth preserved at this period of life are practically immune for the following decade. In order that midshipmen should have proper dental treatment and to prevent a long waiting list it is recommended that six dental officers be the complement from October 1 to June 8, and four dental officers from June 8 to October 1.

The gymnasium medical officer, in addition to his other duties, has conducted the physical examinations for civil service candidates, the number being 845. The gymnasium physical records have been card-indexed and interesting data for study collected. The permanent medical examining board, in addition to holding the annual examinations of all midshipmen at the Naval Academy, and of candidates for entrance, examines prospective candidates and acts as a board of medical survey for the station and naval hospital.

For a number of years it has been known that the sanitary condition of the swimming pool in the gymnasium was not satisfactory. From time to time special reports have been made by the gymnasium medical officers with a view to improving the condition. During July and August several examinations of the water from the pool were made at the United States Naval Medical School, Washington, D. C., and these showed high contamination. A recommendation was made to install two liquid chlorine units and a spit trough to obtain better sterilization. Eventually, there should be a new swimming pool sufficiently large to care for the increased number of midshipmen and for the demands made of it for swimming records, water polo, etc.

*Comparative sick record of the U. S. Naval Academy—Gastrointestinal.*

	Mid-shipmen.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Ag- gre- gate num- ber sick days	Per cent.
1910-11.	759	184	490	143	236	107	123	102	122	13	31	16	41	1,598	0.5768
1911-12.	960	53	60	53	57	5	8	6	1	.....	5	18	.....	296	0.043
1912-13.	875	.....	19	76	39	12	21	20	20	11	10	19	.....	253	0.0792
1913-14.	914	22	6	12	69	8	21	20	22	5	7	6	10	224	0.0883
1914-15.	922	28	26	70	50	37	43	35	34	3	3	5	3	337	0.001
1915-16.	928	16	19	14	27	17	28	15	8	.....	14	9	14	181	0.0536
1916-17.	1,229	14	15	48	42	44	42	91	71	.....	.....	.....	19	386	0.060
1917-18.	1,448	53	46	62	43	26	56	33	28	2	.....	.....	.....	349	0.060
1918-19.	2,119	43	35	35	21	2	4	.....	.....	.....	8	24	18	190	0.0246
1919-20.	2,087	25	18	19	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

Year 1910-11 is the sick record (does not include "excused" days) for the year prior to the installation of the dairy. During this time milk was obtained from a contractor, and bacterial counts as high as 62,000,000 per cubic centimeter were frequently obtained. Contractor's herd never less than 50 per cent tuberculous.

Delivery of milk from the Naval Academy dairy began Oct. 1, 1911. Bacterial count never above 10,000 per cubic centimeter. No tuberculous cattle.

*Receiving barracks, Bay Ridge, N. Y.*—This modern, completely equipped establishment replaces the old receiving ship of the navy yard, New York. It was first commissioned in November, 1918, and on January 1, 1920, its complement consisted of 200 officers and 2,404 enlisted men. The average complement for the year has been 6,450. The construction and plan of the buildings and the system of administration has been fully described in the United States Naval Medical Bulletin, Volume XIV, No. 1, page 163. The water supply is that of New York City. The station consists of 100 buildings, 38 of which are dormitory barracks, wooden two-story buildings, 126 feet long, arranged in rows of threes. In these, when filled to capacity, each inmate has 343 cubic feet of air. Ventilation is by exhaust fans. Steam heat is supplied to radiators from three power plants. Between each two rows of barracks there is a toilet building accommodating 32 men at a time, with showers for 32 and wash spigots for 96. Each dormitory barrack has a urinal which is only for use at night. All food is rigidly inspected daily by a medical officer and the messing has proved very satisfactory. Garbage is disposed of by contract. The detention barracks are inspected daily. Every provision is made for the care of the sick and for venereal prophylaxis. There were 5,000 prisoners during the year. At each end of the camp there is a one-story building 200 feet long and 30 feet wide where the sick are

treated. They are operated as small hospitals to reduce the necessity of transferring simple cases to the United States Naval Hospital, New York, which involves preparation of numerous papers and considerable loss of time. The buildings are completely equipped in every way. There are two wards in each building, one with 724 cubic feet of air space and the other with 900 cubic feet per man. Each dispensary has near it a detached isolation ward accommodating 40 patients with a cubic air space of 578 feet each. The quarantine camp has its own dispensary. The laboratory has made upwards of 25,000 tests, cultures, examinations, and analysis during the year. The central dental operating room has a complete installation, permitting four of the five dental officers of the station to work at one time. The double dispensary system is not considered as economical in the matter of personnel, time, and supplies as the single dispensary, which should have provision for 200 beds.

*Receiving ship, Boston, Mass.*—Three different stations have been occupied by this ship during the past year. On January 8, 1919, orders were received to abandon the quarters at Commonwealth Pier, South Boston, Mass., and to move into the Quartermaster's Terminal Building, at South Boston. A part of the latter structure was already occupied by men of the receiving ship and had been known as the receiving ship annex. A second move was inaugurated on May 7, when the ship was transferred to the reservation of the naval training station, at Hingham, Mass., the latter station going officially out of commission. These last quarters have been occupied by the receiving ship up to the present time.

During the early spring months a few cases of dermatitis were caused by the moth pests which abounded in the trees of the reservation. These had not been obliterated by spraying, and it is recommended that this be accomplished during the coming season to prevent a repetition of the nuisance.

Mosquitos, though relatively few in number, were exterminated by spraying all fresh water pools with oil. One large pool of stagnant water, about two hundred feet square, has been filled in and thoroughly drained.

*Navy fleet supply base, Brooklyn, N. Y.*—The United States Navy fleet supply base was first commissioned September 23, 1918, and on date of this report has a personnel of 56 officers and 52 enlisted men and a civilian force of 3,814. Both the Navy and civilian personnel has been greatly reduced since July on account of returning from a war to a peace basis.

The buildings occupied by the different departments of the base are practically the same as given in the annual report for 1918, except that some of the buildings leased by the Government during the war have been returned to their owners.

The average complement of Navy personnel for the year was 677.58, and the civilian force averaged about 4,500, but since July 1 the complement has been reduced by releasing the Reserves from active duty and by discharges among the civilian employees. During the year 1,608 examinations were made for release from active service.

Two sporadic cases of diphtheria were admitted during the year. In January a seaman on duty at the Thirty-fifth Street Pier developed the disease. Forty contacts with this case were given the Schick test, and cultures were made from 30, by the medical officer from



the naval laboratory on High Street, Brooklyn. The Schick test showed 4 positive and 36 negative. The cultures showed 29 negative and 1 positive. The positive case was a civilian employee. He was reported to the board of health and quarantined at home as a diphtheria carrier until throat cultures were negative. The second case developed in May in a yeoman (female). As she had been absent over the incubation period, no precautionary measures were taken.

A Ford ambulance was received January 18, 1919, for use at the base and has given good service in transferring patients and making outside calls on members of personnel sick at home. It was found that, owing to frequent and long outside calls for investigation, the ambulance was not sufficient and was often out investigating cases when it was needed in an emergency. Accordingly a Ford touring car was assigned to the medical department in April, by the officer in charge, and has been a great help in visiting the sick of both the fleet supply base and the third naval district.

On account of the number of civilian employees who come under the United States employees' compensation act, a large part of the work of the dispensary has been in connection with injured employees. During the year 3,314 injuries were recorded and 7,292 dressings and redressings made. Thirty-five injured employees were transferred to hospital for further treatment; two of these died from their injuries after admission to the hospital.

The labor board for examination of civilian employees has been in commission at the base since May 26, 1919. This has required a medical officer for the physical examinations and 1,902 such examinations were made. About 15 per cent were rejected for physical disability and as unable to perform the physical test of shouldering a bag of 100 pounds weight.

The personnel of the medical department consists of three medical officers, three nurses, six hospital corpsmen, and two civilians, female, for clerical work. This complement is attached to the fleet supply base but also performs the work pertaining to the dispensary of headquarters, third naval district. Since the release of the yeoman (female) from active duty, one nurse, female, has been recommended as sufficient for the work on the station; otherwise the above complement is considered necessary. A dental officer, Reserve Force, was on duty at the base from April until September 12, when he was released from active duty. He did good work and his time was well occupied until reduction in complement was made. The present complement does not justify the services of a dental officer, and this class of patients is referred to the navy yard for treatment.

*Naval section base and air station, Cape May, N. J.*—The average complement of the section base for this year was 450. The complement was about 1,200 in January and gradually decreased to 300 in July. Since August the average complement has been less than 100.

The average complement of the air station for this year was 240. The average from January to July was about 350. Since July the average complement has been about 150.

During the past year there has been no definite epidemic of any communicable disease at either the section base or air station with the exception of a mild group of mumps cases that occurred during March. There were, in all, five cases at the section base and three at

the air station. All these cases were immediately disposed of by transfer to the naval hospital at Cape May.

At present, since the naval hospital at Cape May is out of commission, all communicable diseases must be taken care of on this station. Temporary isolation can be effected at the naval air dispensary, but more desirable isolation can be obtained by opening the isolation building connected with the section base dispensary. This can be opened and made ready for occupancy at a few hours' notice.

Sewage disposal is by means of a system of sanitary sewers which drain into a septic tank. After liquefaction by anaerobic bacteria, the sewage is emptied into the harbor by means of a large drain pipe. There are two septic tanks on this reservation. The one for the section base is situated between the large instruction building and section base storehouse.

The water supply to this reservation is artesian well water from the same source as the city of Cape May. It is pumped from Cape May by the city pressure of 35 pounds per square inch, into a large storage tank on this station.

*Navy yard, Cavite, P. I.*—The interior of the dispensary has been remodeled to meet requirements. The following is a summary of changes made: Operating and dressing room completely screened; separate private office for surgeon of the yard; laboratory erected and equipped; new room for the preparation and dispensing of medicines; examining and recruiting room altered; and new prophylactic head installed. As no medical officer has been attached to the receiving ship during the past 10 months all men are sent to the yard dispensary for treatment, examination for discharge, reenlistment, transfer, etc. The health records of these men have been removed to the yard dispensary and filed.

The native clinic which was conducted by former surgeons of the yard was considered unnecessary, as there is a special clinic at the Canacao hospital maintained for the care of these patients.

The sanitary condition of the United States Naval Prison, Cavite, P. I., is excellent, and the health of the prisoners has been exceptionally good. Aside from a few cases of dengue, there have been no infectious diseases among the prisoners. The food is satisfactory in quality and quantity. Weekly inspections of prison, prisoners, food, and galley are made. The present headgear (small hats) has been replaced by large wide-brimmed straw hats, which will greatly add to comfort of those whose work requires more or less constant exposure to the sun.

The marine barracks are satisfactory, and kept in excellent sanitary condition. The only change made in this department was the installation of a new sanitary scuttle butt at the guard house situated near the main gate.

The sanitary condition of Cavite and San Roque is unsatisfactory. These places are poorly drained, have an inadequate and improper sewer system, and are filled with insanitary houses, rendering them a fertile field for epidemics. As nearly all civilian employees live in Cavite, it requires constant attention to keep infectious diseases out of the navy yard.

The houses of prostitution in San Roque and vicinity were considered, after investigation, responsible for the high percentage of venereal diseases at this place, and it was recommended that they be closed. The approved recommendation was forwarded to the

Governor General of the Philippine Islands, who closed the houses August 15, 1919. Since their closure the percentage of venereal diseases has decreased enormously. Before closure the average percentage of venereal diseases for months of January to July, inclusive, was 30; after closure from August to December the percentage has been 3. Lectures have been given to the men and frequent venereal inspections held, and every effort made to impress upon them the importance and danger of venereal diseases. The results have been very satisfactory.

The diseases which have caused the greatest incapacity amongst the personnel of this station have been as follows: Venereal diseases, dysentery, dengue, mumps, influenza, and measles (German). Two cases of cholera have occurred during the past year; one was in the wife of an enlisted native seaman, the other in a civilian employee. Both recovered. In Manila, during the past year, there has been a severe cholera epidemic, there being over 600 cases reported, with a mortality of about 10 per cent. Posters were placed in conspicuous places throughout yard and buildings, giving causes and prevention of cholera, and men were forbidden liberty in Manila during the height of the epidemic. There have been very few injuries amongst the enlisted personnel and all were of a minor character. The diseases amongst civilian employees and population have been many, principally dengue, dysentery, beriberi. The number of treatments accorded civilian workmen was 8,160.

Recruiting for 1919 has been exceedingly active. The number of accepted applicants in various ratings are as follows:

Regular Navy:

Mess attendants, recruited from the provinces, including Manila, etc. ....	2,358
Native firemen.....	33
Native seamen.....	64
Musicians.....	60

Naval Reserve Force:

Mess attendants.....	2
Wardroom cook.....	1
Seamen.....	22
Firemen.....	16

Reenlistments:

Extension of enlistments.....	200
Reenlistments.....	200

Total examinations..... 2,556

The following list shows the amount of work done by the dental officer during the past year:

Patients treated.....	429	Impacted teeth extracted.....	22
Amalgam fillings.....	321	Maxilla fractures treated.....	2
Cement fillings.....	278	Maxilla fractures necrosed.....	2
Cement fillings, synthetic.....	154	Prophylaxis and scaling.....	145
Abcesses treated.....	23	Pulps amputated.....	20
Bridges removed.....	3	Pulps, canal, filled.....	122
Bridges recemented.....	4	Pulps, canal, treated.....	156
Crowns, gold, removed.....	10	Porcelain crowns.....	7
Crowns, gold, recemented.....	6	Roots extracted.....	102
Porcelain removed.....	11	Teeth extracted.....	20
Porcelain recemented.....	6	Antrums drained.....	2
Gingivitis cases.....	24	Partial plates constructed.....	1
Pyorrhea cases.....	5	Ether anesthesia.....	2
Inflammation treated.....	33		

Dental examinations and records filled in for enlistments and reenlistments numbered about 1,000. The need of the services of another

dental officer at this station can be readily seen from the amount of work enumerated above. There is a dental officer at Olongapo, P. I., and it is suggested that if an additional dental officer can not be permanently detailed at this yard that the dental officer at Olongapo be sent to Cavite at least twice a month to relieve the situation.

The following is a brief summary of work done during past year:

Applicants accepted for mess attendants.....	2,358
Discharges.....	457
Examinations for draft.....	4,508
Examinations for transfer.....	5,244
Examinations for change of rating and extension of enlistment.....	1,500
Treatments furnished yard employees.....	8,160

*Navy yard, Charleston, S. C.*—Inspection of food, which was formerly under a representative of the Department of Agriculture, is now in charge of a naval medical officer, who has been detailed to that duty only, as food supplies are brought to the yard at all hours (yard hours). The building used for this work is conveniently situated and equipped for inspecting as to quality and quantity, and all food purchased on Government contracts must pass this inspection. The yard supply of water is derived from the same source (Goose Creek) as the city supply. It is treated with alum and lime, and at times there is quite a disagreeable taste, which is probably caused by this chemical treatment. There is also an artesian well in the yard, and some prefer this water. During the past year, as was also stated in last year's sanitary report, there has been some difficulty in properly flushing toilets on account of low-water pressure, caused by droughts. This condition was particularly marked in the naval-clothing factory, where toilets on the second and third floors were frequently out of commission.

During the year a large number of men were physically examined for employment in the yard. These examinations, with few exceptions, were made by a medical officer attached to the dispensary, and required about three hours daily. Examinations are held at the labor-board building, and this arrangement is found to be more convenient than having the applicants come to the dispensary, as was formerly the case.

Civil employees, entitled to medical and surgical treatment on account of injuries received in the line of duty, are given first-aid treatment at the dispensary, and subsequent dressings if they are able to return. Those unable to report for further treatment were either transferred to the naval hospital or, if living in the city, referred to the section base medical officer, who took charge of them, and returned them through the dispensary when fit for duty.

The work in the first-aid room requires the entire time of a medical officer during the forenoon and practically eight hours a day for a pharmacist's mate. The latter assists the medical officer with the records, as reports required in connection with this work are numerous. Many claims for compensation are submitted by injured workmen to the United States Employees' Compensation Commission, and every effort is made to have the records complete.

*Receiving ship, Charleston, S. C.*—The sick bay of the receiving ship has been moved from the U. S. S. *Hartford* and is now located in a large barracks in the navy yard near the machinist's mates' school. It consists of a ward of 16 beds, a first-aid room, dispensary, store-

room, record room and medical officer's office. There is also a large head with four shower baths, four water-closets, and two urinals. A part of this compartment is partitioned off and used for a venereal head. There are 20 windows in the ward and it is satisfactorily heated by steam radiators. The dispensary, storeroom, first-aid room, record room, and medical officer's office are also well heated and ventilated. No serious or contagious cases are kept at the sick bay, but are transferred to the United States Naval Hospital, Charleston, S. C. There is no dental officer at the sick bay, the work being done at the yard dispensary. The X-ray facilities at the hospital are taken advantage of and have been a great help. Taking everything, as a whole, facilities for the treatment of the sick are adequate.

*Naval air station, Chatham, Mass.*—The largest complement present at any one time was in February, 1919, and consisted of 437 officers and men. The average for the year was 211. There were at first many highly unsatisfactory details of equipment and construction and a lack of thoroughness in observing sanitary requirements. These features have been largely corrected. Cracked, insanitary tables and mess gear have been replaced by new ones, general screening of doors and windows has been effected, and inspections have been made rigid with noticeable improvement in the cleanliness and policing of mess hall and galley. Repairs and completion of necessary work have been required of the contractors. It was insisted that the new barracks should not be occupied until such essentials as bathing and toilet facilities, lighting, etc., were adequate. The erection of temporary toilets was objected to and prevented. There was delay in operating the sewerage and septic tank system until they had been thoroughly tested. This was done by the station force because the contractors had abandoned the job.

The sick bay, a frame building, 135 by 30 feet, is located on a sand bank 19 feet above high-tide level, exposed to the full force of north-eastern winds, so that it is cold in winter. For five days in December there was no water available owing to freezing in the pipes. In summer sand is driven with great force against doors and windows, penetrating everywhere through crevices and cracks, and is deposited on clean beds, instruments, etc. The Ford ambulance was commandeered for general station purposes during the summer. Because of the difficulties attending the work of the medical department and the discomfort and isolation that characterize this station and duty hospital corpsmen should not be given a long assignment here.

*Naval air station and submarine base, Coco Solo, Canal Zone.*—The only epidemic occurring was of malaria, during the months of July, August, and September. The preventive measures instituted consisted of employing professional mosquito catchers and oiling all possible mosquito-breeding places with a solution of crude oil, containing 1 part each of kerosene and "larvicide" to 40 parts of crude oil. The number of admissions for malaria dropped from 146 during the period January 1 to July 15 to 13 during the period July 16 to December 31. These mosquito catchers have been constantly employed up to the present time, with the result that there is only an occasional admission for malaria. Most of the cases were contracted away from the station.

The men are quartered in two-story barracks equipped with double tiers of bunks, designed to accommodate 310 men each. In addition

there is one building at the naval air station which has accommodations for 60 men. Chief petty officers' quarters are on the upper floor, over the mess hall, with accommodations for 80 men. Each barracks has a cubic capacity of approximately 154,536 cubic feet, giving 498.5 cubic feet of air space per billet. The chief petty officers' quarters has a cubic capacity of 52,546 cubic feet, giving 656.8 cubic feet of air space per billet. The small barracks at the air station has a cubic capacity of 39,744 cubic feet, giving 662.4 cubic feet of air space per billet. Doors and windows are kept open at all times, so that the cubic capacity does not give a correct index of the amount of air to each man. The buildings are lighted by electricity throughout. No heating is necessary. Water is obtained from the canal filtering plant and is of unexcelled purity; in fact, so free from impurities that it is used in batteries without distillation. There are 26 water-closets in each of the barracks, 4 being reserved for venereal patients, in the ratio of 1 to each 12 men. In the chief petty officers' quarters there are 9 water-closets, giving a ratio of 1 to each 9 men. The urinals are porcelain troughs 9 feet 6 inches long, 6 to each building, with 3 in the chief petty officers' quarters; washbowls, 56 in each barracks and 22 in chief petty officers' quarters, giving a ratio of 1 to every  $5\frac{1}{2}$  men in barracks and 1 to every  $3\frac{1}{2}$  men in chief petty officers' quarters. Fresh water is supplied to all toilets.

The food is of excellent quality, fair variety, well prepared, and is served in one large mess hall on the cafeteria plan. Storerooms are well kept, cool, and well ventilated. One ice plant furnishes cold storage for meats and other perishable foods. Ice for consumption is obtained from the Panama Canal commissary. The galley is at one end of the mess hall, is well kept, and facilities are ample to feed a full complement. Wet garbage is put in covered cans and removed daily by Panama Canal trucks; dry garbage is burned.

The hospital corpsmen are of average efficiency for their ratings, are attentive to duty, and seem to be contented. Their habits are good, aptitude good, and they are fairly studious. The nature of their duties is such that they can readily qualify for higher ratings in all branches except operating-room technique. They are regularly instructed in subjects embodied in the Handy Book, and given practical work in ward, dispensary, and dressing room.

The hygienic conditions in general are excellent. All buildings are constructed with provision for ample ventilation and protection from rain, according to design found by experience to be most suitable for this climate. Concrete construction should be used in the future, as such buildings are cooler, can be kept more sanitary, and freer from ants and cockroaches than frame buildings. Malaria continues to be the cause of the largest number of sick days. Breeding of mosquitoes is kept at the minimum on the station, but the swamp adjoining the reservation continues to be a menace to the health of the station personnel. The swamp has been partially drained by Army engineers and it is hoped that malaria will be much less prevalent next summer.

In that this dispensary serves the naval air station as well as the submarine base, it is recommended that an additional room for eye, ear, nose, and throat work be built, and equipped with modern apparatus for testing pilots. There is no equipment for this work at

present. It is also recommended that a dispensation be granted to the dental officer at this station to do gold crown and bridge work. He is the only one in this district and frequently officers and men from passing ships need such work, and can not get to a civilian dentist. The work would be done better and at much less expense to the personnel. Previous recommendations regarding the swamps adjoining the reservation are of as much urgency now as when they were made.

*Naval training camp, Detroit, Mich.*—The venereal situation at this camp has always been a serious problem for the medical officer. A very strict watch was kept at all times for venereal disease, and while our sick list showed at times a greater percentage of venereals than the average, these figures did not mean more cases than the average, but did mean that the number that missed detection was practically nil. The health authorities of Detroit were always ready to cooperate with us in combating this evil and succeeded in quarantining a number of women who were spreaders of infections.

The fact that this camp was a sort of clearing house for the *Eagle* crews ran our sick list up to considerable proportions at times. These ships were in many instances commissioned without a hospital corpsman aboard and made the trip to the coast without proper medical attention being available for the men on board. Their crews would contract venereal or other disease while en route and would in many cases be without attention until their return to this camp (from one to six weeks later).

*Naval ammunition depot, Dover, N. J.*—There has been an extremely low incidence of communicable disease during the year. This is believed to be due in large measure to the mountainous character of the country and an abundant supply of unpolluted spring and well water.

On June 4 of the past year a new dispensary was completed. It is situated midway between the barracks and the medical officer's quarters, being about 200 feet distant from each. It consists of one story and basement and is of frame construction, shingled exteriorly. It contains a ward with ample room for 10 beds, diet kitchen, head, bath, storerooms, dispensary, waiting room, venereal room, and office. A steam heating plant and water heater are located in the basement. Unfortunately access is had to the basement only from the exterior of the building. This results in great loss of heat and considerable inconvenience. Some difficulty in maintaining a suitable temperature within the building has been experienced, but it is hoped that with the aid of storm windows and storm doors, which are being made, this will be overcome.

Frequent instruction has been given the men of the command in first aid, venereal disease, the necessity for prophylaxis, and the danger from partaking of substitutes for liquor. The necessity of the last-mentioned topic was emphasized by a case of bay-rum poisoning which occurred here and was seen in convulsions by most of the men.

Hospital corpsmen attached to the station are three in number. A lesser number would be insufficient. They receive instruction in the subjects covered in the Handy Book on three afternoons of each

week. Excellent opportunity is afforded the men to prepare themselves for advancement in rate.

The station is, from a hygienic standpoint, ideally located, and the personnel is surrounded with practically every requirement for the building up and maintaining of a healthy, vigorous, and disease-resisting constitution.

*Naval ammunition depot, Fort Mifflin, Pa.*—The ammunition depot, Fort Mifflin, Philadelphia, Pa., is located on the southern bank of the Schuylkill River just at its inflow into the Delaware River. It is very well situated for its purpose, being well isolated, yet readily accessible to ships. It can be reached from the Philadelphia Navy Yard by tugs and by electric car lines from all parts of the city.

In 1795 the State of Pennsylvania transferred to the Federal Government a tract of land known then as "Mud Island" with a provision that it be used for military purposes. The land comprised about 300 acres, two-thirds of it being marshy. It was garrisoned by the War Department and during the Revolutionary War the fort played a prominent part. At present the old fort serves as a base for United States river and harbor engineers, and as a historical curiosity and is under control of the War Department. About 150 acres of this land were transferred to the Navy Department by the War Department, and this tract was the foundation of the present naval ammunition depot. During the past year an additional tract of about 145 acres was purchased from private interests so that now this naval reservation comprises approximately 300 acres of land. During the late war many improvements were made, and many new buildings built, so that the present depot may be regarded as one of the best in the country. Until June 13, 1918, this station was under the command of the Philadelphia Navy Yard. On that date it was commissioned as an independent post.

The medical department has at its disposal a single room 11 by 16 by 10 feet, situated in a frame building that has been used as quarters for civilian employees and is anything but adequate. Lack of working space, and space for the proper storage of supplies has been keenly felt. The ventilation is poor. During the year the dispensary was rewired and repainted. No provision is made for the treatment of bed patients and all such among the naval and marine personnel are transferred to the naval hospital. The civilian patients are transferred to city hospitals or to their homes.

The commanding officer of this station fully recognizes the shortcomings of the present dispensary and has exercised his efforts toward establishing the new quarters for the medical department, which will be occupied during January, 1920.

*Naval station, Guam, Ladrone Islands.*—The health of the inhabitants as a whole and the general sanitary condition of the island may be said to be slowly improving. The chief diseases encountered are intestinal parasites, tuberculosis and skin diseases, such as yaws, impetigo contagiosa, gangosa, and leprosy. The two last-named diseases are very much on the decrease. Although vigilant search is maintained for them, only two gangosas and two lepers were found during the year. The same may be said, but to a less extent, of the intestinal parasitic diseases, as all the school children of the island and practically all under school age received worm treatment during



the year. Little change is noted in the incidence of skin diseases, which could be decreased if the natives would boil their clothing. Every endeavor is being made to educate the natives to do this. Tuberculosis is very prevalent, as manifested by the fact that the vast majority of the autopsies from all causes demonstrate its presence in one form or another. Intensive sanitation and educational propaganda is being maintained in an endeavor to combat this scourge. The premises and all occupants of houses where tubercular patients live are being inspected, and a written report of recommendations is sent to the governor in each instance.

Under the cognizance of the medical department comes the naval hospital, tuberculosis hospital, Tumon leper colony farm, naval cemetery, quarantine station, besides about a dozen sanitary outstations widely scattered all over the island. From this it will be appreciated that it is necessary to maintain a large and efficient medical personnel at all times. A widely fluctuating complement reacts badly for efficiency. The allowed complement of medical officers is none too large for the amount of work, whereas the complement of hospital corpsmen allowed (30) is a minimum and that of Navy nurses is entirely inadequate. At least 12 should be here at all times to properly maintain hospital efficiency and teach the native girls who are undergoing training in the native nurses' school at this hospital.

The climate is good during about one-half of the time but very hot and oppressive during the other half. There seems to be something very irritating, nerve racking, and disagreeable to Americans about the climate. They appear to be under more tension, more easily upset, more irritable and more depressed mentally, so to speak, than at other stations. For this reason, if no other, the tour of duty here should be not more than 18 months for both officers and men. If a station ship could always be kept here to go on "health trips," as was previously the custom, it would offset to a large extent existing isolation, lack of transportation, and other disadvantages.

A professional subject deserving thought and study is the possibility of the close association of the toxins of intestinal worms, especially the *ascaris lumbricoides*, and mechanical obstruction, in cases of so-called epidemic asthma. This is prevalent all over the tropical world where intestinal worms are very common. Epidemic asthma occurs sporadically and seldom in any but children at the crawling stage who have recently become infested and possibly have not acquired immunity to intestinal worm toxins.

*Naval station, Guantanamo Bay, Cuba.*—The new dispensary was completed early in the year and is satisfactory in every respect. It has a capacity of 50 beds, which can be expanded to 75 beds by using porches and corridors. A treatment and venereal prophylactic room with table, sterilizer, trough, etc., has been installed in the genito-urinary ward and takes that class of cases from the main dressing room, and the venereal prophylaxis from the genito-urinary head.

*Naval training station, Great Lakes, Ill.*—The highest average weekly complement was for the first week in January 31, 362; the lowest was for the third week in October 5, 188. The most marked shortage of personnel was during the last few weeks of general demobilization of reserves during October and November, when nearly everyone was

clamoring to be released. The readjustment has been wholly satisfactory, considering the material at hand. The situation as to hospital corpsmen was very grave at this time. All reserves were released, leaving our sick boys to be handled by men recently transferred from the seamen branch or who had enlisted in the Hospital Corps without any preliminary training. Classes were started and, through a short course of intensive training, a fairly efficient force was produced. At no time have the sick suffered.

No extensive building has been going on. Buildings have been repainted and kept in good repair. As fast as their abandonment has been necessary, due to decreased activities on the station, they have been closed and locked. At no time has there been any necessity for overcrowding. Requirements as to heat, light, and ventilation have been more than ample.

The policy of retrenchment has been carried out with full regard for efficiency until at this time it seems the limit has been reached to permit proper and successful training of 5,000 recruits. There are in operation four dispensaries, which are located in the most advantageous positions in regard to work connected with the four regiments, extending over a distance of 2 miles.

There has been no extensive epidemic of any of the contagious diseases. Contagious diseases gradually decreased as the year progressed till the week of November 23, 1919, when none were reported except a few venereal cases. There should be some arrangement whereby prophylaxis can be carried out without the man waiting for 24 to 48 hours, as there is ample evidence to show that prophylaxis taken after a lapse of 6 hours is practically worthless as a preventative and gives a sense of false security. There are no prophylaxis stations in this district and the men are forced to wait till they return to the station from liberty.

The report for the last quarter as regards Schick's test and diphtheria toxin-antitoxin substantiates the observation of the 50,000 cases passed upon. During the various seasons tests on the same individuals who originally were found negative but subsequently were positive, and on some who were 1+ and 2+ positive on first test and later showed 3+ and 4+ positive, taken together with the development of diphtheria in persons giving negative Schick reactions a few days previously, all had a tendency to show that the Schick test was not always an absolute index of the existing immunity. In consequence of these facts and for other less important reasons, the discontinuance of the Schick test in favor of universal administration of toxin-antitoxin was adopted.

*Naval training camp, Gulfport, Miss.*—The medical work carried on at this station continues highly satisfactory as it follows the lines originally laid down by Captain J. D. Gatewood, Medical Corps, United States Navy, the medical officer first assigned to the station at a time when initiative and expert knowledge of hygiene and sanitation were indispensable.

Important changes have been made in the marshy area which was, as stated in the other reports, the western third, approximately, of the grounds. Through this swampy area, which was formerly a breeding place for mosquitoes including the anopheles, and which required oiling, the United States Public Health Service last summer dug a ditch 8 feet wide and 4 feet deep leading to an outlet at the beach.

There were dug also a few small, short, and shallow ditches which lead into this main ditch. The walls of the ditches are holding well and the draining is satisfactory. With very little effort and trouble these ditches can be kept free of any vegetation or debris which might interfere with proper draining. Oiling, if ever necessary, would be only in a few small collections of water. At present the redeemed land east of this ditch is irregularly covered with grass, is sandy, rapidly absorbs the water of heavy rains, and makes a happy playground for the boys in detention camp immediately adjacent, while that west of the ditch is on a higher level, has less sand in the earth, and is more thickly covered with grass. The whole area may be properly called redeemed land and is available for almost any purpose for which it might be needed.

In the detention camps there are 18 barracks, a dispensary, a brig, and a galley but no mess hall. The men mess in individual barracks. These are all of the same size, 88 by 28 and 10 feet in height to the rafters, unceiled; each has a solid, central partition which prevents all communication between the two divisions.

Each of these divisions has the same arrangement and equipment which is as follows: Next to the middle partition, full width of the barracks, and extending 10 feet 9 inches, there is a partitioned space which is further equally divided by a partition. The remainder of the barrack end is 32 by 28 feet. It is ventilated by a transom over the 1 door and 17 windows which are 17 inches from the floor, 34 by 53 inches in size, and are swung by hinges from the top so that they open by a horizontal bar at the bottom. This remainder of the barrack end has a large table with benches and serves as the reading, writing, eating, and sleeping quarters of 12 men who swing in hammocks. It will easily be seen that there is more than the required space and ventilation. Now one of the equal divisions of the partitioned space above given communicates by a large window and door with the barrack end just described. It is provided with a gas range, two gas heaters, and one sink with hot and cold water. Food is brought in large containers from the galley, and if necessary may be warmed. This food is served on the table in the barrack end. The mess gear is then not taken from the barrack as there are provisions at hand for cleaning, sterilizing, and keeping it in the partitioned space. There is also a garbage can which is handled through a trap door in the wall. The other equal division of the partitioned space is entered by a door from a porch. It does not communicate with the barrack end except from the outside through this porch. It has cement floor and the following installations: One urinal, two stools, two lavatories, and two shower baths which are in a partitioned space 11 by 4 feet. This shower-bath space also serves for a wash room. As stated above the other half of each barrack has the same facilities for 12 men.

The dispensary building in detention camp is 84 by 22 feet and is 12 feet in height to the ceiling. The ward is situated at the end and is 22 by 15.5 feet. It is ventilated by 7 large windows and has 5 beds. There is also a small room at the other end of the building for isolation. There is a dental chair and full equipment for dental work. The other medical facilities are ample for the needs of this camp.

There are in the main camp 22 barracks, 1 washhouse, 3 latrines and 1 brig. The barracks are all the same size and each is divided

into 2 equal parts by a central partition. Each half barrack is 30 by 28 feet and 10 feet in height to the rafters, has 21 windows 34 by 53 inches and was intended for 22 men who swing in hammocks. This is rather crowded as the cubic air space is approximately 450 feet and the floor space only 38 feet per man. Actually, at present, only 9 men occupy each half barrack.

The dispensary building in the main camp is 130 by 22 feet. The ward is at the end and is 22 by 23 feet. It is ventilated by 9 windows and has 7 beds. At the other end of the building connected by a covered porch 17 feet long is an addition 12 by 23 feet which has 2 beds for isolation. The medical equipment and facilities of this and the other two dispensaries meet all the needs of the camp.

*Naval operating base, Hampton Roads, Va.*—The general sanitary condition of the base reservation has, on the whole, been as satisfactory as it was reasonable to expect in the presence of developmental operations in every direction, particularly at the western end in the interest of the supply and submarine stations and at the eastern end in the interest of the air station. Thousands of men were employed on the work in hand and the prevention of the disorder of which they were capable through their habits and physical needs required the utmost vigilance. This, together with supervision in the interest of the proper conduct of routine activities having a bearing on sanitation, and the control of fly and mosquito breeding and similar matters too numerous to recount kept the sanitation division busy to good purpose and provided occasion for regret when the personnel of this division was detached.

The antimosquito work which had been so successfully conducted by the United States Public Health Service in the environment of the base during 1917 and 1918 came to an abrupt end, after certain preliminary work, on June 30. During 1917 and 1918 the station was practically free from mosquitoes owing to the control work carried on both outside of and within the reservation. The legal limitation to the employment of naval funds in sanitation work is the boundary of the Government reservation and although mosquito breeding was prevented last year within this boundary, including the east camp which was constructively a part of the Government's concerns, this was very far from being enough and the station suffered a pest of mosquitoes throughout the season. The cessation on June 30 of control work in territory within mosquito flight was responsible for this. Fortunately, very few cases of malaria resulted. The whole matter has been made the subject of special correspondence and it is hoped that enough may be done during the coming summer to renew the good record of 1917 and 1918.

The garbage and refuse disposal service was conducted by the public works department which made all collections at points of production on the base and delivered the material at the incinerator for consumption or further disposition to private collectors. Such was the case up to April 1 and there was no occasion for complaint either as to adequacy or method. On April 1 a change was made placing the responsibility of collection at points of production within the base upon a private collector. Fear was entertained that this would not prove satisfactory from a sanitary point of view, but economy dictated a trial of the new system and, contrary to expectations, the

provisions of the contract were closely observed and no occasion for unfavorable criticism developed.

Surface drainage is still a problem as regards the acreage resulting from suction dredging which was completed in October. There are large areas over this new territory which hold water and can not be approached because of the softness of the mud, and they can not be drained by any means short of a considerable expenditure of money not now available. Every low-lying area within the limits of the original land, however, except that extending under a few of the barrack buildings in unit "R," that on the south side west of Maryland Avenue and that east of the hospital and north of Powhatan Street were filled to level by the suction dredging and with an efficient surface-drainage system accommodating the extent of the original land, mosquito control will be relatively easy. The low areas mentioned are to be obliterated by dry fill but this work is progressing very slowly because of lack of funds for labor. It is problematical whether or not the large, shallow, water-holding areas on the made ground will be mosquito breeders as there is no vegetation and evaporation may be very rapid. It will probably take a year or more before these areas are sufficiently solid under foot for grading. The section of the north side, east of the boat basin, is now being graded and seeded in the preparation of an aviation field, and the contractor is experiencing great difficulty with one of the large soft areas referred to.

The control of venereal diseases is a matter which has received the interested attention of this office, acting in an advisory capacity as regards the stations on the base and in cooperation with existing activities in Norfolk. For this purpose routine reports have been required from the several stations, and all information brought to light by them which would be helpful to the city authorities and other properly established agencies concerned has been communicated to them.

It may be of interest and value to note the organization for this work in the city. There is a city venereal clinic in charge of a paid physician, who devotes his entire time to it, and who operates under the control of the commissioner of health of Norfolk (the clinic and its equipment are provided by the city, and the salary of the physician is jointly paid by the Red Cross Society and the United States Public Health Service). All cases not in hospital are treated at this clinic, and hospital accommodation is provided for old offending cases at the city jail hospital, and for young new cases at the City Home (hospital building). Cases are hospitalized through the venereal clinic to which they are sent (a) from the city dispensary clinic; (b) through the activity of the vice squad operating in conformity with the provisions of the "ill-fame act"; (c) through the activity of the Red Cross; (d) through the activities of the law enforcement agents of the Interdepartmental Social Hygiene Bureau of Washington, D. C.; (e) through the juvenile court—the judge and chief probation officer (a woman); and (f) through the office of the commissioner of health from those cases notified to it by physicians and drug stores.

The complement of the dental service usually consists of three dental officers, with an equal number of hospital corpsmen as assistants, and they are charged with delivering lectures to each company of recruits on mouth hygiene; teaching the several schemes of caring for the mouth and teeth; the examining and charting of all recruits; scaling and polishing teeth, and, with the cooperation of the surgical section, the removal of all worthless teeth and roots. During the year 1919 there were 12,285 recruits so treated, and 700 cases were handled from among the personnel of the main part of the station.

It is felt that this work not only lessens the chances of lost time to the men, but instills in them the desire to keep up the care of their mouths.

The present laboratory, located in building No. 14, Unit E, is splendidly arranged, well lighted, and roomy.

The following is the summary of the year's work:

Examinations.	Number examined.	Positive.
Throat cultures for meningococci.....	697	33
Throat cultures for diphtheria.....	77	11
Feces examination for intestinal parasites.....	5,369	2,212
Noguchi tests for syphilis.....	2,226	67
Blood smears for malaria.....	35	19
Smears for gonococci.....	1,334	632
Urinalyses.....	349	
Blood counts.....	41	
Autogenous vaccine.....	47	
Water.....	744	
Milk.....	113	
Ice cream.....	167	
Ice.....	99	
Butter.....	1	
Identification of blood stain on rope.....	1	
Miscellaneous.....	49	
Sputum for T. B.....	75	
Vincent's angina.....	39	26
B. fusiformis and spirochete.....	35	22
Dark-field examination for spirocheta pallida.....	163	32

Routine examinations of incoming recruits for intestinal parasites gave the following data:

Intestinal parasites.	Men examined.	Positive.
Parasites.....	5,369	2,212
Hookworm.....	5,369	1,403
Ascaris.....	5,369	346
Trichuris.....	5,369	254
Hymenolepis.....	5,369	169
Strongyloides.....	5,369	26
Oxyuria.....	5,369	5
Taenia saginata.....	5,369	4
Schistosoma Mansoni.....	5,369	5

*Combined infections.*

Hookworm-ascaris.....	65
Hookworm-ascaris-trich.....	28
Hookworm-ascaris-trich-hymen.....	1
Hookworm-ascaris-strongyloides.....	5
Hookworm-ascaris-hymen.....	1
Hookworm-hymenolepis.....	22
Hookworm-trichuris.....	42
Hookworm-strongyloides.....	11
Hookworm-trichuris-hymen.....	3
Hookworm-oxyuria.....	1
Hookworm-schistosoma Mansoni.....	1
Ascaris-trichuris-schistosoma Mansoni.....	21
Ascaris-hymenolepis.....	2
Ascaris-strongyloides.....	1
Hymenolepis-trichuris.....	15
Hymenolepis-strongyloides-hookworm.....	1

States.	Number exam- ined.	Positive.	States.	Number exam- ined.	Positive.
Louisiana.....	77	18	Florida.....	252	189
Virginia.....	1,091	422	Arkansas.....	23	6
North Carolina.....	821	447	Missouri.....	36	11
West Virginia.....	391	146	Porto Rico.....	38	27
Maryland.....	504	85	Philippine Islands.....	21	21
District of Columbia.....	140	17	Oklahoma.....	4	1
Georgia.....	789	389	Virgin Islands.....	2	1
South Carolina.....	490	224	China.....	1	1
Kentucky.....	113	35	New Mexico.....	1	.....
Texas.....	178	31	Cuba.....	1	.....
Tennessee.....	192	96	Pennsylvania.....	7	2
Mississippi.....	91	16			
Alabama.....	121	59	Total.....	5,378	2,208

By cooperation with the commanding officers and the senior medical officers of the various organizations in the fifth naval district, all general court-martial prisoners are, prior to trial, given an intensive examination in order to establish an opinion as to the mental condition of the prisoner and whether he is responsible or irresponsible. This has brought out the fact that a fair percentage of general court-martial prisoners are mentally irresponsible for their acts.

Another activity which has been started during the year is the school organized and controlled by the Y. M. C. A. To this school all recruits who are illiterate, or practically so, are sent for a course of instruction in elementary schooling. The percentage of illiteracy among the recruits during the spring and summer of 1919 was surprisingly large. Apparently men who could not sign their names had been admitted into the service by recruiting officers. The psychiatric division has had close and hearty cooperation from both medical and line officers and the work has progressed very smoothly. The cases with which the psychiatric division is concerned at Hampton Roads are derived from the following sources of supply:

- |                       |                                      |
|-----------------------|--------------------------------------|
| (a) Recruits.         | (e) Receiving ship.                  |
| (b) Training station. | (f) Submarine base.                  |
| (c) Air station.      | (g) Base craft and incidental cases. |
| (d) Base hospital.    |                                      |

All recruits entering the training station are, prior to being outfitted, given a routine psychological and neurological examination. This work is under the supervision of the assistant psychiatrist and a detail of hospital corpsmen, who have been specially trained for this duty. Permanent records are kept of each examination. Any recruit who fails to pass either the psychological test or neurological examination is immediately referred to the director of the division for an intensive examination and recommendation as to his disposition. The recruit in question may then either be immediately surveyed back into civil life or returned to duty under observation. In the first case he is discharged before he has received his Government outfit, which means a monetary saving of about \$100 on each recruit, not to mention the contaminating effect upon other men in the service which might ensue if unfit men were allowed to pass in and then be weeded out at some later day. Recruits who are found to be illiterate, or practically so, are referred to the Y. M. C. A. school of seamanship. Men who are evidently superior in intelligence are listed as eligible candidates for the petty officers' schools.

Cases coming from the training station are those which have developed neurological or mental symptoms while in training. These men are usually picked up by their company commanders and are referred by their regimental commanders to the medical officer of the unit who further refers them to this division for an opinion. In cases requiring several days to make a definite recommendation, these men are placed on the sick list and sent to the psychiatric ward for observation. On these cases, as soon as an opinion can be formed, a note is written in the health record with such recommendations as are deemed necessary for the disposition of the case. Cases selected from "mast" are handled in the same manner, except that they are usually kept under observation in the brig instead of the psychiatric ward.

The intensive examination of a case means a detailed family and personal history, all information which can be obtained from the patient's shipmates and medical officers referring the case, a thorough physical examination with special attention to neurological aspects, and an examination of mental status following the outline or regular mental examinations given by the New York State hospitals. In cases of suspected defects such standard tests as the Yerkes-Bridges and the Stanford Revision of the Binet-Simon intelligence tests are given. The results of these examinations are entered in the health record in form of a note, together with recommendation as to disposition. In addition, in each case so handled a record is made and kept on file.

The following is a statistical report of work for the year:

Preliminary psychological tests given recruits at Hampton Roads.....	12,165
Number of neurological status given recruits.....	12,189
Number of preliminary psychological tests given at the St. Helena training station, to armed guard and receiving ship cases.....	753
Total number of cases given intensive examination in the Fifth District.....	1,322
Total number of cases recommended for medical survey for discharge from the service.....	616

Another very important work for the psychiatrist is the early picking up and proper disposition of men showing incipient psychoses. All company commanders, regimental commanders, and medical officers, knowing that there is a special psychiatric service at hand, will be on the alert to detect any symptoms among the men with whom they come in contact, which would lead them to suspect mental instability. In this way various naval training stations can doubly serve their purpose by taking in and training only proficient men and also in promptly getting rid of men who would sooner or later become a menace to the service. In connection with this work it has been found difficult to obtain properly qualified assistants in the way of hospital corpsmen. It is suggested that greater stress be laid on the detection and handling of mental cases at the Hospital Corps schools, and some ideas of elementary psychiatry and intelligence testing be included in these courses of instruction for the benefit of such hospital corpsmen as desire to engage in psychiatric service.

Since January 1, 1919, there has been a gradual reduction in the purely medical activities that are cared for by the base dispensary. To counter-balance this the medical officers are more often called on for special temporary duties and for duty on courts and boards. The reduction in personnel is, of course, out of all proportion to the decrease in activities, so that the work here is just as strenuous as



ever, if not more so. As a whole the organization is on a far more stable and satisfactory basis than it was during the early months of 1919. Regular officers and enlisted men have replaced the reserves; a permanent civilian ambulance driver and a janitor have been secured. There is far less waste, far more interest shown in the work, and the men are much more reliable. The enlisted personnel are not as well educated or perhaps as brilliant as the class of men we had during the war, but the qualities enumerated above more than offset this.

During the war there was a sufficiently large medical personnel attached to this district so that efficient aid could be given to officers, enlisted personnel, and their families living outside the base. The cost of living is mounting higher and higher. These services can no longer be rendered. In order to get prompt attention civilian doctors now have to be employed, a very serious additional blow to the slender income of any one in the service. When it is physically possible to do so, it has been the policy to respond to requests for attention. Most of this work, almost all of it indeed, is done when the medical officers are supposed to be off duty. The last call has sometimes been made as late as 10 p. m. To cite one example only of why it is necessary to make outside calls, a chief petty officer had five cases of typhoid fever in his family. He has had to employ a cook and a trained nurse for over two months; there is barely enough money left to feed them, none to pay for a doctor. An additional medical officer assigned for such duty, with adequate facilities for transportation, would prove of great value to the naval personnel quartered outside the limits of the base.

All of the young women who enlisted for the war were placed on inactive duty during the summer. This greatly relieved the situation, for in many instances they abused the privilege of receiving free medical attention. It was surprising to note the remarkable improvement in their health when they were obliged to punch time clocks and lost pay when they stayed away from work.

In November a few cases of smallpox were reported from the Army supply base. Steps were taken immediately to protect the naval and civil service personnel against this dread disease. On October 21 the first and only case to date appeared on the naval base. The patient, a negro laborer, an employee of the public works force, was isolated at once and later transferred to the Norfolk Isolation Hospital. As soon as a definite diagnosis was made all persons who had been exposed were collected and marched to the base dispensary where they were vaccinated. That evening when the press of work at the dispensary had diminished, all homes on the base were visited, and all officers and their families were vaccinated. This prompt house to house vaccination was deemed expedient in order that all, but more especially the children, should be immunized just as soon as it was physically possible to do so.

At the receiving ship there were 27,322 men received and 21,152 transferred to other stations and ships during the year. All men reporting and those being transferred were made to report to the medical officer of the day for examination for the purpose of detecting venereal, skin, and contagious diseases and also for any other condition which might be present. In addition to the above, 11,985 men were carefully examined for discharge and for transfer to inac-

tive duty by a board of two medical officers. Whenever a dental officer was available each man before being discharged or transferred to inactive duty was sent to him for dental examination and the results charted in his record. Otherwise this duty was delegated to a hospital corpsman who had some dental experience. There were 412 reenlistments during the year which is far below the average considering the number of men who have received their discharge.

During the year there were 1,265 prophylactic treatments given and so far as our knowledge goes only 5 developed venereal disease. Of course no statistical value can be attached to this record as there is no means of telling how long these men were retained on the receiving ship. No doubt the larger proportion of them were transferred before the period of incubation for venereal diseases had expired. It is almost impossible to get accurate statistics in this line of work at a receiving ship on account of rapid changing of the personnel. One thing has been demonstrated very clearly and that is the convenience of a prophylactic station. While the receiving ship was located at St. Helena, the prophylactic station was immediately inside of the gate and kept open day and night. Since the receiving ship has been located at the naval operating base prophylactic treatment has been given in unit "R" dispensary, which is at the far end of the station. Considering the relative location of the prophylactic station at each of the two places it has been clearly demonstrated that four times as many men, in proportion to personnel, took advantage of the treatment when it was conveniently located on their return route to their quarters as when the station was remote. This clearly shows that the logical place for a prophylactic station is at the entrance where all men must pass to reach the sleeping barracks. Owing to there being some doubt as to the legality of compulsory medical prophylaxis in the Navy, it has been voluntary, but the men have had every encouragement and advantage possible for taking it. In order to make compulsory prophylaxis effective it must be backed by the strictest disciplinary action. Lectures on moral prophylaxis and instructions in medical prophylaxis are given three hours weekly. While the percentage of venereal diseases seems rather high for the receiving ship, it must be remembered that practically three-fourths of all the admissions for venereal disease were for cases who had contracted the disease either in foreign ports or in distant cities in the United States.

*Naval ammunition depot, Hingham, Mass.*—The station consists of buildings for loading, testing, and storage of ammunition, barracks for the marine guard, six houses used as officers' quarters, and three houses used by civilian employees. During the period of the war the work on TNT was mostly confined to weighing and filling. The records of 43 civilians on this type of work, for periods varying from six months to one and a half years, showed nothing more severe than slight discomfort such as headache, bitter taste, occasional abdominal pain, constipation, and occasional slight dermatitis. At other times there was a slight eruption of discrete pinhead papules. With the exception of the dermatitis all these minor complaints may be found in almost any form of employment. This work was done under ideal conditions; the filling houses were scrupulously clean, well ventilated, and under careful supervision during an eight-hour day. Alternation of labor was another factor, the men working in

four-day shifts. The men on this work were all healthy, well developed, and nourished, and their ages ranged from 35 to 50 years. During the active period of war there was very little disturbance due to TNT poisoning at this station. This condition was undoubtedly due to the care in handling the TNT and the ideal working conditions. With the cessation of activities this station became more of a storage place and many mines and depth charges were returned here for storage. The cases were wet and most of them were covered with wet TNT and had to be handled several times before they reached their final storage house. Enlisted men and civilian employees, mostly inexperienced men, handled this work. During July, when there was a period of very warm weather, with high humidity, signs of TNT poisoning became very noticeable. During this weather men would show symptoms after two or three days' work. On one of these hot days one man who never touched TNT before showed definite cyanosis after six hours' work. At the close of one of these very hot days 27 out of 40 enlisted men showed definite cyanosis, all complained of dizziness, 15 complained of headache, a few complained of diarrhea and cramps. These enlisted men were between 18 and 22 years of age. At the same time out of 20 civilians 3 showed cyanosis. They were engaged at the same work, but were men between 40 and 50 years of age. The mines and depth charges as above mentioned were wet and practically covered with a thin coating of TNT, so that despite all care the hands were continually covered with TNT. This suggests that the hands were the channel of absorption, the work being done out of doors for the most part. A complete physical examination, including blood and urine examinations, has been made of every man connected with TNT work. The men at work wear a one-piece canvas suit with long sleeves. Gloves are forbidden except when washing the cases, as then the hands would be in a solution of TNT. At these times heavy rubber gloves are worn. Before starting work the hands are covered with a skin varnish composed of 6 parts of shellac, 1 part of castor oil, 24 parts of 95 per cent alcohol. This varnish is removed with alcohol and then the hands are washed with 10 per cent sodium sulphite. Heavy shoes are worn. A high proteid diet is recommended. The mines and depth charges are washed with hose as well as possible before handling. Men are advised to change all clothes immediately after work.

When a case is detected he reports to the sick bay. There his skin is washed with sodium sulphite, later with ether. A saline cathartic is given. He is removed from TNT work and is given a few days' furlough with advice as to rest and light out-of-door exercise. His diet is prescribed with reference to high proteid value and he is told to eat all the fresh vegetables he can. In the occasional case when weakness was complained of, mild stimulants were given. All cases apparently respond rapidly to treatment.

*Naval proving ground, Indianhead, Md.*—The naval dispensary is well located and has adequate equipment for the care of any ordinary emergency. During the year a large annex was completed, which added two eight-bed wards with baths and toilets and three new storerooms. This is in addition to the original building, which consisted of the following: doctor's office, dispensary, operating room, dressing room, sterilizer room, basement, kitchen, and four rooms on

the second floor planned as quarters for a pharmacist. A new sterilizer room has been fitted out completely, so that in an emergency sterile hot and cold water, sterile instruments, dressings, and utensils can be quickly prepared.

However, while well supplied with equipment, it would be impossible to do more than give first aid to injured persons because of the shortage of hospital corpsmen.

During the year there were 94 admissions for disease and 8 admissions for injuries. This includes two cases admitted with malaria. Four hundred civil employees were treated for injuries in line of duty. Most of these cases required many subsequent dressings and treatment. In addition to this number many accident cases were treated for the contracting concerns doing work for the Government. There were 914 unskilled laborers examined during the year prior to their employment by the Government. A board of sanitation was organized June 14, 1918, by order of the inspector of ordnance in charge. The duties of this board are to "investigate and report upon the general sanitary conditions of this station as a whole." The board is empowered to investigate "such parts of the reservation as is deemed necessary," and the board is directed to make through the senior member "such recommendations as it considers necessary."

The sanitary board has at its disposal a sanitary squad of civil employees. On January 1, 1919, there were eight men in this squad. During the summer they were increased to 35. This number has been reduced until now there are but 20 men. They have the use of one truck for garbage and ashes, one team with a wagon for garbage, and one dump wagon for hauling the refuse. Three men (sometimes five) work with the truck hauling garbage. One man goes with the team and wagon and one man on the dump wagon. This requires from five to seven men daily.

Garbage is hauled to the incinerator, which was completed in August, and there disposed of. The incinerator requires about 200 pounds of coal a day and burns about 3 tons of garbage a day. The amount of garbage could be increased up to 35 tons daily if necessary without burning more coal.

During the spring and summer a campaign against flies and mosquitoes was waged. In addition to efforts to destroy breeding places, the houses, galleys, etc., were screened and fly swatters and traps were issued to families, with printed circulars telling of the advisability of killing flies.

Proper handling of this problem is complicated by the division of authority between civil and naval jurisdiction. It appears that some effort has been made to centralize this authority, but without success. It is the old story of the relative incompatibility of civil and naval life. This is a serious handicap in matters of sanitation.

*Naval station, Key West, Fla.*—The average complement for the year 1919 is 333. At the date of this report there are 27 officers and 148 enlisted men attached to the station, the word "station" comprising the receiving station, the naval station, and the marine barracks, the health records of all officers and men of the above being carried at the yard dispensary. The medical officer of this station is also sanitation officer, the former being considered paramount duty.

On September 9, 1919, a hurricane visited Key West. The yard dispensary sustained considerable damage to the roof and sleeping

porch, which permitted the rain and wind to gain entrance and resulted in rendering unfit for use or destroying entirely instruments and furniture carried on charge.

During the latter part of October and during the month of November a mild epidemic of dengue fever was prevalent on the station. Most of the cases admitted presented the typical textbook symptoms, with the exception of the rash, which did not appear in all cases. This epidemic subsided during the latter part of November, with a recurrence the latter part of December.

The new marine barracks placed in commission December, 1918, is a large and commodious building of concrete with a veranda along the north side of each floor. All outside windows and the verandas are thoroughly screened with fine-mesh wire. There are three floors, the lower being used for offices, galley, mess hall, and canteen. The second and third floors are used as sleeping quarters for noncommissioned officers and privates. The second floor contains 59 single beds with 14 toilets and 11 showers. The third floor contains 22 single beds. There is approximately 1,000 cubic feet of air space to each berth. The lighting and ventilation are excellent. The seaman barracks was put in commission March 12, 1919, and is a three-story fireproof structure of concrete. The first floor is used for mess hall, galley, and offices. The second and third floors are used as dormitories for the enlisted personnel. There is a total of 240 berthing spaces, which allows 390 cubic feet for each berth. However, the average complement is 100 men, so that for each man attached to the barracks there are about 900 cubic feet of air space. The second floor has 15 showers, 17 toilets, 40 lavatories, 10 laundry tubs, and 10 urinals. The third floor contains no plumbing. The showers and lavatories are supplied with well water, which is brackish and rather hard. The supply of fresh water is limited, and a sufficient supply could not be maintained with existing facilities for storage. The principal source of fresh water is the rain water collected in the cisterns.

Hygienic conditions on the whole are excellent. Both the seaman barracks and the marine barracks are new structures, and the ventilating, lighting, and plumbing arrangements are fully adequate. The breeding of mosquitoes has been controlled on all naval property by keeping an oiling truck employed spreading oil over all open bodies of water. However, as practically all fresh water in Key West is obtained from cisterns, some of which are but imperfectly covered, it is impossible to eliminate mosquitoes entirely, the city maintaining but one oiling truck. A great improvement in the sanitary conditions of the station, the naval air station, and naval hospital was made about the close of the last fiscal year with the introduction of the double-set garbage-can system where the used cans after being emptied are thoroughly cleaned with alternating live steam and salt water, clean cans replacing the full cans carted away.

*Naval air station, Lakehurst, N. J.*—Excavation and preparation of the site of the airship shed has gone rapidly forward and the erection of the steelwork has just been commenced. Barracks, mess halls, and toilet buildings have been almost entirely occupied; stables for about 100 head of horses have been erected and the water system has been altered to afford two separate systems, one for

drinking water, the other for fire mains and mechanical supply. Suitable latrines have been constructed on the site, care being exercised that they do not contaminate the sources of water supply. About 500 civilian employees are housed in the buildings allotted to the contractors. Under the guidance of the medical officer and with the hearty cooperation of the contractors, the sanitary condition of these buildings is very good, considering the class of individuals that occupy them. Daily inspections are made and discrepancies are brought to the attention of the various employers. The equipment of the medical department is adequate for the care of 1,000 men and it is prepared for any emergency surgical condition that may arise. There is a well-equipped operating room, a four-bed ward adjoining, with material and space for an extension to a 20-bed ward, a small laboratory, storeroom, dispensary, and office. The purchase of an X-ray outfit of the bedside type has been approved by the bureau and its installation is expected within the month. First-aid treatment is extended to all men employed on the work. Since October 1, 1919, 224 treatments have been given. Most of the accidents have been minor in character, but it is believed accidents of a more serious nature will occur when the erection of steel constructions is forwarded. This station is isolated and this department must necessarily be prepared for any emergency condition.

Plans for the airship shed have been completed and the layout for power house, barracks, dispensary, hospital, and officers' quarters has been begun. A small first-aid unit consisting of two rooms has been designed for the airship shed.

This station is situated between two very extensive bogs which are near enough to make the question of mosquito breeding a serious one. Drainage or fill are out of the question, as the bogs are privately owned and the cost would be very great. Oiling would be objectionable, as they feed valuable cranberry bogs. Screening is the best method available for our protection and in designing all buildings it is recommended that the bureau insist upon a thorough application of this method.

*United States Naval Headquarters, London, England.*—United States Naval Headquarters, London, England, was placed in commission on June 15, 1917. This station consists entirely of offices for the commissioned and enlisted personnel attached to the force commander's staff at London. During the period prior to the armistice the occupied space steadily expanded until 10 buildings, viz: Nos. 12 to 30, inclusive, Grosvenor Gardens, were taken over for offices. Since the armistice this space has been steadily decreased, and on December 31, 1919, only two buildings, 26 and 28, Grosvenor Gardens, were still occupied. On December 31, 1919, the following personnel were attached to this station: 40 officers; 104 enlisted Navy personnel; 15 marines.

Of the total of 320 admissions for all diseases there were 114 admissions for venereal disease, that is 35.6 per cent of our total sick from diseases. This is an alarmingly high percentage, largely due to the fact that after leaving the office there is no control over the men, since they maintain their own quarters among the various rooming houses and private families in the city. Furthermore, a large number of these cases were transferred on the sick list to this station from the various naval vessels stopping at British ports.

The men attached to this station are repeatedly warned by the medical department of the dangers of these diseases, and instructed in the methods of their prevention. Every facility for the use of prophylaxis is given them. A prophylactic station with a hospital corpsman in attendance is maintained. The British Medical Society, for the past year, has been maintaining an active campaign against these diseases, and is appealing to the public through the newspapers, pamphlets, and signs in public places. Numerous centers have been established by the British Medical Council, at convenient places throughout London, for the free treatment and free consultation of persons suffering with these diseases.

This station consists entirely of offices. The buildings occupied were originally private dwellings. There is ample electric light in all the rooms. Also all the rooms have large and numerous windows, so that natural light and ventilation is all that can be desired. However, owing to the climatic conditions of London there are but few days on which electric lighting can be dispensed with. The heating of the offices is done by open grate fires of soft coal. There is an ample number of washrooms with sanitary fittings, for officers, enlisted men, and civilian clerks. The water used is that used by the city of London and is in every way potable. There is an excess of lime salts in this water, not sufficient, however, to render it unfit for use either for drinking or laundry purposes. There is no Navy ration issued at this station. The men are given subsistence, and secure their food wherever they please. There have been no epidemics, or even an alarming number of diseases attributable to food, though occasionally food poisoning occurred due to ingestion of decayed fish. The dietary obtainable in London is deficient in variety. There are but few vegetables obtainable, and fresh fruit is scarce and expensive.

No sick bay is maintained. The medical department consists of three rooms, viz. an office where all the clerical work is done, and which at the same time is the office of the aide for medicine and surgery to the force commander; a well equipped office for the dental officer; and a dispensary. The dispensary, besides having the necessary facilities for compounding drugs contains a small operating table, and facilities for performing minor operations and for intravenous injections of salvarsan. There is an ample supply of hot and cold running water. The room is well ventilated and has ample lighting, both natural and artificial. In the basement there is a large fireproof room which is used as a medical store room.

Prior to May, 1919, all the general medical and surgical cases, and practically all the dispensary treatment was given at United States Naval Hospital, London, England. This hospital was placed out of commission on April 30, 1919. Since then the cases requiring hospital treatment have been sent to the British military hospitals in London. Our venereal and acute infectious cases are sent to special hospitals. Prior to the closing of United States Naval Hospital, London, England, Wassermann tests and intravenous injections of salvarsan were given there. Since the closing of this hospital (April 30, 1919) 150 Wassermann tests have been taken, and 100 intravenous injections of salvarsan (novarsenobenzol) have been given without any serious complications. In addition to the

officers and enlisted men attached to this station, the medical department has furnished medical and surgical treatment to the various leave parties in London from United States naval vessels in British ports; to the wives and families of the naval personnel; and, in addition, to the members and their families of the United States embassy, the United States consulate, and the United States Shipping Board, London; and also to the officers and crew of vessels of the Shipping Board in the port of London.

*Navy yard, Mare Island, Calif.*—The Navy and Marine personnel has fluctuated somewhat during the year but on the whole has remained fairly constant. The civil force has increased about 3,000, the number of employees ranging from 7,000 in January to 10,000 in December.

No epidemic outbreaks have been noted. A small outbreak of pneumonic plague occurred in the vicinity of Oakland in September and October. Diphtheria was very prevalent in Vallejo during September, October, and a part of November. Smallpox has been very prevalent in Napa during the last quarter of the year. Such diseases are of importance to the station owing to the yard workmen living in these cities. There has been no plague, but one case of smallpox, and a few cases of diphtheria in the Navy personnel, none of which could be traced to the cities mentioned.

There is ample space in the barrack buildings and the ventilation is satisfactory. Messing facilities are good but not quite up to the standard at other stations. Dish-washing machines are available but have not been used for lack of knowledge as to how to operate them, and they are not in good repair through neglect. The type of machine is one of the best and it has been recommended that they be put into good order and used, as the possibilities of spreading contagion through improperly cleaned mess gear should be constantly borne in mind. The sick bay is not by any means of the best type, one ward only being available for all patients with no proper cubicles for possible contagious cases. The general bathing and toilet facilities are only fair and of a temporary character. The whole camp is temporary. It was reported that it was to be abandoned, but about December 1 the Yerba Buena station became crowded and the recruits have since that time been sent to Mare Island.

The new barrack building for marines is very satisfactory for the housing of men, the only objectionable feature being the toilets on the top floor which can not be used owing to the lack of adequate water pressure. The salt water flushing system is not very satisfactory because of the destructive action on the fixtures, and the muddy character of the water. This can not at present be remedied as there is not sufficient fresh water that can be used for flushing purposes. The old barrack building is to be renovated and the objectionable features that have existed in it for many years will be eliminated. The detentioners are kept in tents as well as some of the other men. Owing to the mild climate this is not objectionable but the tent is not an economy for a permanent camp. The bathing and messing facilities are good. The rifle range is located about one mile from the yard and as it will no doubt be permanent, proper barrack buildings to accommodate the men on the range should be erected. At present they are living in tents which must be unsatis-



factory during the spring, summer, and fall; because of mosquitoes, as well as being undesirable to the degree that a tent is less satisfactory than a permanent building. The prison is overcrowded and the older part decidedly objectionable. All of the original cells should be removed, unless one row be left for the punishment of refractory prisoners, and the whole prison should be fitted with cells of the type in the newer portion. These are well ventilated and all that could be desired. The older cells with nominally no ventilation are not fit for human use. The doors are not closed in these cells to permit of ventilation which helps from that standpoint, but reduces security correspondingly. The cooking is being done in a wooden shack, no portion of which can be kept even reasonably clean, and by the time the food reaches the tables in the prison it is not in good condition, as it has to be carried approximately 150 feet in the open with delays in getting into the prison itself.

The yard proper has expanded greatly since the war began and at present has 10,000 workmen. The toilets and lavatories with one or two exceptions, are obsolete and inadequate. The employment of women clerks in various departments has complicated the situation, and the toilets for their use are often some hundreds of feet from their place of work, in another building entirely. The whole matter calls for a thorough survey and prompt action as the great majority of the toilets are of an old type, unsatisfactory, with little or no ventilation, and not what they should be. The water question has always been one of importance at Mare Island, the supply never being equal to the expansion. For the past three years the average rainfall has been less than normal and so far this year there have been but about 3 inches. As Vallejo is supplied from the same source, the increase in population has had to be accommodated. The only available source of additional supply that can be reasonably considered is from Gordon Valley where enough water for the yard can be obtained at a comparatively small cost. This work should be undertaken promptly.

The average complement for the year has been as follows: Naval training camp, 2,507; marine barracks, 1,710; naval prison, 127; civil employees, 8,623. Deaths: Enlisted personnel, 7; civil employees, 8.

The yard dispensary building is not conveniently arranged. It is adequate in size if the portion formerly used as packing, shipping, and survey rooms of the supply depot were so located as to be properly utilized.

The following is a report covering the dental activities of the yard dental department, showing the work done at the training camp, marine barracks, and yard dental office:

Operations.	Navy personnel.		Marine personnel.		Naval prison.	Visiting ships.	Total.
	Naval training camp.	Other Navy personnel.	Recruit depot.	Other marine personnel.			
Extractions.....	887	230	530	387	91	298	2,333
Restorations.....	2,776	1,077	759	891	244	1,354	7,011
Treatments.....	2,422	1,083	665	1,069	287	1,251	6,777
Total.....	6,085	2,360	1,954	2,257	622	2,903	16,181

*Submarine base, New London, Conn.*—The health of the personnel at this station during the year 1919 was very good, the annual rate per 1,000 being much below that of 1918, and but little higher than that of 1917. The table showing the annual rate for each month is as follows:

Months.	Average com- ple- ment.	Ad- mis- sions and read- mis- sions.	Total sick days.	Annual rate per 1,000.	Months.	Average com- ple- ment.	Ad- mis- sions and read- mis- sions.	Total sick days.	Annual rate per 1,000.
January.....	2,560	238	592	1,115.52	August.....	904	46	249	554.28
February.....	2,464	250	568	1,219.49	September.....	933	89	346	887.40
March.....	2,318	119	400	615.96	October.....	1,709	83	917	581.72
April.....	2,227	165	775	849.08	November.....	1,474	92	778	748.92
May.....	2,296	128	862	679.56	December.....	1,355	93	1,238	823.36
June.....	2,310	97	636	503.88					
July.....	2,070	103	700	597.00	Total.....	22,674	1,483	8,079	9,216.28

Total admissions and readmissions for the year.....	1,483
Discharged to duty.....	1,310
Transferred to naval hospitals.....	227

**Causes of death:**

Drowning.....	4
Nephritis, acute.....	1

The diseases responsible for the greatest number of admissions and readmissions were:

Tonsillitis, acute foll.....	150
Influenza.....	135
Tricophytosis.....	119

Injuries were responsible for 211 admissions and 4 of the 5 deaths were due to drowning in an accident to a submarine, which sank near the entrance to this harbor.

The admissions for venereal diseases were as follows:

Gonococcus infection of urethra.....	71
Syphilis.....	11
Chancroid.....	6

The number of contagious diseases was as follows:

Influenza.....	135
Mumps.....	13
Chicken pox.....	1
Measles.....	2
Pneumonia.....	2
Scabies.....	22
Tricophytosis.....	19

The personnel of the base having diminished during the course of the year there were ample barrack facilities for everyone. None of the buildings of the lower base are now being used as barracks and are vacant, with the exception of the warrant officers' quarters at the northern end of barracks 14 C and the chief petty officers' mess at the southern end of the three "14" barracks. There is therefore much space available for any sudden increase of personnel or for temporary use of sick in case of epidemic. A feature of these buildings which proved unsatisfactory is that the ventilators are installed underneath radiators. They gather dirt and refuse and are easily deranged. In winter freezing of the water in the radiators

occurred, and they have been a source of much trouble. The buildings are of light construction, inflammable, and unsuitable as permanent installments of a naval station. In connection with the subject of officers' quarters it should be remembered that there are no public quarters here for married officers, excepting the house of the commander of the base. The station is isolated and officers are required to find homes in New London and elsewhere. Suitable quarters are scarce and the great distance makes it very inconvenient to live there. It is unfortunate that the considerations which determine the location of a naval base are so seldom *en rapport* with the comfort and convenience of the personnel concerned in its management. This base has an average of 50 families of officers and men who must find lodgement of some kind and some of them have to live 8 to 10 miles away. This, among other inconveniences, makes it difficult for the medical staff to give professional attention to those who are ordinarily entitled to it.

The sick-bay building is arranged in an excellent manner. The chief wants are additional private rooms and additional space for the galley. On account of the distance to homes of officers it is necessary to admit them to the dispensary when sick, and at times the three available rooms do not suffice. The equipment of this dispensary is excellent and can serve for the use of a regular naval hospital. Contagious cases (excepting the unimportant ones) are transferred to the isolation hospital of the city of New London.

The medical personnel of the station consists of four medical officers and one dental surgeon. This official complement about meets the needs of the station. Quarters are provided in the dispensary for the officer who has the day's duty. Generally one medical officer is occupied making outside calls on sick among the families of officers and enlisted men. For this purpose, public transportation is necessary. At present the dispensary has a Ford car furnished by the Red Cross which is now practically worn out and a new car is needed. The dispensary is also provided with an ambulance.

Three nurses (female) are stationed here and their services have been of the greatest aid, especially as the hospital corpsmen detailed here are generally untrained upon their arrival. A course of instruction (four hours a week), is given to hospital corpsmen. The various subjects are taught by one of the medical officers, the pharmacist, and the chief nurse. Advancement is not rapid because routine work generally interferes with study. It is to be hoped that the hospital corpsmen may in the future be first sent to a Hospital Corps training school before taking up regular duties at dispensaries.

Two divisions of submarines are based on this station. There have been several recommendations made and adopted by boards to increase the habitability of submarines. These vessels are at their best not especially habitable and from the nature of things can not in all probability be made so. Such work as has been done here concerns deodorization of air, the revision of the submarine ration and improvement of air supply during surface cruising.

A board of officers was appointed during the year for the consideration of the submarine ration and made its report July 30, 1919. The recommendations of this board have been adopted at this base and are believed to be of material service. Only the general headings of this question can be mentioned here, but any one interested can

obtain a copy of the board's report by applying to this base. The board points out (a) the necessity of compact but nutritious ration; (b) the elimination of extensive cooking facilities on submarines; (c) a ration which is not conducive to constipation; and (d) reducing all cooking odors to a minimum. Sample menus are submitted with the recommendation that the ration allowance be increased from 75 cents to a dollar a day.

Particular care is being exercised in the selection of men physically fit for this special duty. Those unsuited for this work are transferred to other duty. Generally men who have been selected with sufficient care as to their physical condition make good in this work. Those who later have been found inapt are such as had not the proper temperamental qualities, a feature not easily judged at one preliminary examination. Certain others have had to be transferred on account of oncoming deafness and other troubles which developed later.

The incidence of illness among the submarine personnel has been about the same as that for the base, with the exception of tonsillitis, a disease to which submarine crews are especially liable in winter. In connection with exposure to weather conditions it is thought wise to require the men to don their submarine clothing at the barracks. This will avoid undue exposure and the unpleasantness of shifting in narrow and cold quarters, and also the soiling of "blues" aboard the submarines where it is difficult to keep away from grease and oil. Barracks for submarine crews should be located near the water front and near the boats. Individual drinking cups should be used on submarines, both for the purpose of saving water and as a health measure.

Living conditions are necessarily constrained in every way during submergence, and depending on whether the cruising is in a hot or cold climate, temperature conditions are a problem one way or the other. Electric heaters are not very efficient or economical in energy. Considerable improvement has been made in the *R* and *S*-class of boats in that an air supply is obtained from louvers located at a high level in the superstructure. A system of pipes leads into the interior where the air is distributed to the various compartments of the vessel.

Mention was previously made of the fact that hospital corpsmen are sent here before they have had any training. This is only an item of conditions in the service. A large portion of the experienced men of the service have gotten out or are waiting to do so. The cause of this exodus is mainly one of economics, but probably also psychic—a loss of interest after the excitement of war. Such a great change in the general character of the service personnel, whereby much the larger part consists of young boys, by necessity transferred to stations without the essential tutelage of the naval training stations, makes it difficult to carry on the functions of the service with the accustomed efficiency. This state of affairs is reflected in every department at sea and ashore. Beyond the necessary legislation, of which the service has no control, there seems to be no speedy remedy for the present lowering of standards of efficiency, except a special effort on everybody's part to tide over the situation, which no doubt will prove to be only temporary.

*Navy yard, New Orleans, La.*—This report includes the receiving ship at New Orleans and the marine barracks, both located within the naval station reservation.

The complement of the station fluctuates with changing conditions. The complement on December 31, 1919 was 438. The average complement for the year has been 814.

Percentage of sickness.....	0.884
Percentage of mortality.....	.122

Average complement 814; deaths 1.

The general health of the station has been excellent. No diseases have prevailed in epidemic form. An attack of acute food poisoning visited the Marine barracks on August 26, 1919. A special report of the incident was made on September 20, 1919. The housing facilities for the enlisted personnel are ample. Nearly double the present complement can be accommodated without overcrowding. The facilities are, according to standard floor space, 776; according to standard air space, 1,139.

The yard dispensary has excellent facilities for dispensary cases, but is poorly located, being about one-half to three quarters of a mile from the industrial and personnel activities of the station. In order to render better medical service to the yard, authority to remodel the interiors of four buildings numbered 1, 17, 19, and 307, lying between the receiving ship building and the industrial plant, for medical department uses has been granted by the Navy Department, and at the close of the year the work is nearing completion. When the alterations to the buildings are completed, it is planned that yard dispensary activities will be entirely carried on in the four buildings mentioned above, and that the present yard dispensary building (Building No. 28) will be turned over to the naval hospital, which is located in the immediate vicinity.

The measures initiated in 1918 and described in the last annual report for the eradication of the Argentine ant have been continued with gratifying results. The ants have not been completely eradicated, but they have been reduced to the point where they no longer invade the living quarters of the station. Continuation of the present system of ant eradication is recommended.

*Navy yard, New York, N. Y.*—The average number of civilian employees for the year has been 14,990. The average enlisted personnel has been 998, inclusive of marines. Up to August 1, 1919, the average number on the sick list was 21. The average number of yeomen (f.) was 483. Since the absorption of this branch by the civil establishment of the yard these women receive treatment only for disease or injury incurred in the discharge of their duties. In general the health of the enlisted personnel at this yard has been excellent and there have been no epidemics or contagious diseases. The present dispensary building is considered inadequate for the use of this yard, being too small and poorly arranged. The prison used for the detention of men awaiting trial for transfer has been inspected daily by a medical officer. Inspections of all shops and departments are made at frequent intervals and reports have been made to the commandant when necessary.

A new ventilating system is required for the brass foundry. It is occupied by 100 workmen, and a physical examination was made of 75 of them. While the general condition of the workmen was fair

50 per cent of them reported having had "brass chills" or "spelter shakes," and in one-third of the number there was evidence of marked bronchial irritation. The number of latrines available for the yard workmen is inadequate, and the location of some of them is contrary to sanitary laws.

All injured employees requiring hospital care are sent to the Long Island College Hospital, one of the establishments designated by the compensation commission. All cases of eye injury requiring hospital treatment are sent to the Brooklyn Eye and Ear Hospital. Where injured employees retain the services of physicians of their own choice results are often very unsatisfactory.

*Navy yard, Norfolk, Va.*—The general sanitary condition of the yard was good during the year. Contagious diseases were reported as follows:

Marine barracks: Mumps 7, measles 1, diphtheria 1.

Navy yard: Influenza 75, pneumonia 1, mumps 3, scarlet fever 2.

Civil employees were incapacitated on account of injuries as follows:

Industrial department: Six hundred and eight men with a loss of 7,617½ working days.

Supply department: One hundred and twenty-six men with a loss of 1,716½ working days.

Civil employees were treated for injuries not occasioning incapacity as follows:

Industrial department.....	3, 675
Supply department.....	631
Total.....	4, 306

During the year 12,696 men were examined for employment in the yard as follows:

Classified labor, 6,279; rejected, 442. Unclassified labor, 6,417; rejected, 993 Apprentices, 468; rejected, 3.

This office during the year treated an average of 46 persons daily, including Sundays. In addition to the above, six calls daily, including Sundays, on an average, were made from this dispensary in Portsmouth, Park View, and Port Norfolk. There were 2,828 cowpox vaccinations and 215 typhoid prophylaxes given at this dispensary.

The yard is swept by an Elgin sweeper, which eliminates dust and greatly reduces the cost of the old system. On the whole the streets of the yard are quite clean and the method of collecting and removal of garbage is satisfactory. During the summer and fall men were engaged in searching for and in petrolizing mosquito-breeding places in the yard and Marine barracks reservation. This work was done thoroughly in the yard, but at the barracks the work was more difficult because of the extensive low ground. In spite of this work, the mosquitoes were very plentiful and extremely annoying during the late summer and fall. It appears that most of them came from several acres of waste ground situated in Portsmouth, and adjoining the yard on the west side. This tract is uneven, contains numerous ditches, is covered with weeds, and is a receptacle for surface drains from houses in adjacent blocks. This has always been the source of great annoyance to residents and other people who are required to eat in the navy yard. Of late years the cities of Norfolk and Ports-

mouth have taken considerable interest in perfecting the milk supply, and now we are able to obtain milk of as good quality and comparative freedom from chance of carrying disease as is found in our best cities in the North. The greatest danger comes from small dealers who happen to have one or two cows and supply certain families in the navy yard with milk. Such dealers are to be very carefully watched. Plans have been drawn up and funds authorized for the construction of an addition to the dispensary and it is expected that this work will be started about the middle of February, 1920.

*Naval station, Okinawa, P. I.*—During January and February several cases of smallpox were discovered among the native inhabitants and treated at the reservation isolation hospital. All the cases were either infants or children. The usual sanitary and prophylactic measures were taken to prevent the spread of the disease and to protect all contacts.

During the severe epidemic of cholera that spread throughout the islands in July, August, and September five cases were discovered on the reservation among the natives, who showed all the clinical signs and symptoms of the disease. Three of the cases died. The infection was probably introduced by carriers from infected districts. All cases, as soon as discovered, were transferred to the isolation hospital. The inhabitants of the houses where these cases were found were also placed in quarantine in a camp previously erected in the barrio of Kalalake, about 2 miles from the town. These suspects were kept in quarantine for a period of six days and released only after examination of the stools failed to show cholera infection. Meanwhile their houses were thoroughly cleaned up and disinfected by a special sanitary squad, organized for the purpose.

Among the native children, scabies, tropical ulcers, and yaws have been frequently encountered. Rigid inspection of school children results in getting these cases under treatment early in the disease. The installation of shower baths at the schoolhouses and the supplying of appropriate remedies which are employed under supervision of a native trained nurse have done much to limit these infections.

*United States Naval Headquarters, Paris, France.*—Thirty-one naval officers and 102 men have been stationed at the United States naval staff representative's office, at the Hotel Crillon with the Peace Commission, and on commissions which expect to leave for Germany as soon as peace is ratified. In addition there are 1 officer and 27 men in the marine detachment. The number of men has constantly fluctuated. Enlisted men were ordered to Paris for further transportation to the United States, to the Adriatic, Mediterranean, and Turkish waters. As many as 500 enlisted men, sometimes as high as 2,000, were on leave from United States Navy transports in Paris daily during the months of July, August, and September, all of whom came under the medical attention of this office.

The office of the United States Naval Staff Representative moved from 4, Place d'Iena, to 9, Rue de Chaillot, on September 1, 1919. The office of the medical department consists of two rooms on the second floor of the building at 9 Rue de Chaillot. One room is used as an office and for sick call and the other as the dispensary. A corridor adjoins the two rooms and ample facilities for storing supplies are available in this corridor. These rooms are conveniently arranged

and satisfactory in every respect. Heating, lighting, and ventilation are good. Officers and enlisted men who suffer from minor ailments are treated at their homes. All patients who require hospital care at the present time are sent to the French Military Hospital, Val-de-Grâce, Paris. Reservations have also been made at the American Hospital, Neuilly-sur-Seine, just outside of Paris. The Val-de-Grâce Hospital and the American Hospital were chosen after the American Expeditionary Forces and the American Red Cross hospitals had closed. Before their discontinuation, 87 patients were transferred to United States Army Hospital No. 121 and 11 patients were sent to the American Red Cross hospital.

A dental officer was stationed at the old office at 4 Place d'Iena, and he occupied two rooms on the second floor until June 3, 1919. After his detachment all dental cases were referred to U. S. Army Hospital No. 121. After the close of the American Expeditionary Force hospital a dental officer was temporarily ordered to this office on December 1, 1919. Since no rooms were available, a part of the dispensary was assigned him.

The enlisted men of the Marine Corps lived in barracks and were subsisted by the supply officer until September 10, 1919, when they were given a subsistence allowance to live in various hotels and boarding houses throughout the city, as the enlisted personnel of the Navy has done during the past year. At first it was deemed undesirable as good judgment was not always used in selecting quarters, and some of the hotels where the men lived and subsisted were of questionable character. This, however, has changed to a great extent. The subsistence allowance with a favorable rate of exchange seems to be quite adequate for their needs.

Notwithstanding the fact that prophylaxis has been available at all times, and that it has been made compulsory, still there was constant increase of venereal cases to such an extent that one-half of the sick days, which were daily recorded, could be attributed to venereal diseases. Paris, being centrally located, was a station where many enlisted men reported from London headquarters, and from Brest, for further transportation to the Adriatic and Mediterranean naval forces and to our forces in Turkey. A considerable number of these men were found to be suffering from venereal diseases. In order to detect these cases it was imperative to have every man who had to pass through Paris examined. Twenty-seven cases of syphilis are under treatment at this office. It is definitely known that 9 of these cases were contracted in Paris, and the other 18 cases were in enlisted men transferred with the disease from Brest and London.

Three hundred and sixty-five injections of novarsenobenzol, or "Billon," were given here without unfavorable reaction.

*Pearl Harbor, Hawaii.*—The portion of the naval station at Honolulu proper at present occupies a total area of about 1 acre. The buildings consist of six frame structures. The sanitary condition is very satisfactory. The principal activities of the medical department of this station comprise examining applicants for civil service appointments, averaging 40 weekly, and continuing the treatment given employees injured at Pearl Harbor who are given time off because of injury. Numerous calls for investigation of cases are answered from the dispensary, relieving the medical officer of a large number of unnecessary trips to and from Honolulu. The hospital corpsman is required to visit



all transports coming into port in order to ascertain the condition of the naval patients, and to arrange for their transfer to the hospital should their condition require. The officers and enlisted men and their families living in Honolulu, and those attached to outlying stations, are treated from the dispensary. The dispensary is very conveniently arranged. It comprises an examining room, dressing room, dispensary, medical storeroom, office, and toilet.

There were three deaths for the past year among the civilian employees of the station. One resulted from a fall of 98 feet from the top of the smoke stack of the power plant and was immediate. One was due indirectly to stunning by a live wire which resulted in fracture of the spine, incident to a fall. One was the result of tetanus, the patient being treated by local physicians. The evidence showed that the infection was not contracted while working on the station.

*Naval air station, Pensacola, Fla.*—A great deal of work has been done during the year in clearing and draining marshy inlets from the bay and a sanitary squad is constantly at work keeping open the system of ditches that have been constructed and cutting down the dense overgrowth of weeds and shrubbery. As a result of these measures, together with strict sanitary supervision of the contiguous villages of Warrington and Woolsey, breeding places for mosquitoes have been eradicated almost entirely and the number of mosquitoes greatly reduced. The destruction of anopheles is evidenced by the fact that there have been but six cases of malaria during the year. A medical officer has been designated to make inspections and supervise the sanitary conditions in the civilian settlements adjacent to the navy yard with a combined population of 1,500 white and colored people.

The general health of the station has been good. There have been no large epidemics and the contagious cases which have come under observation have been sporadic and of a mild nature. This has been due in part to careful construction and routine methods of sanitary control of the camp established in 1917 and 1918, and partly to the reduction in personnel due to demobilization.

There has been a gradual reduction in the number of cases of venereal disease, due mostly to demobilization. However, records of cases on the reservation and in the city of Pensacola adjacent show a decided decrease in new cases since effective prohibition has gone into effect. The morals of the station have been doubly protected since the war began by a strict civilian police guard which allowed no one except authorized persons to enter the reservation.

Considering the number of flying hours, the mortality report for the year is low. Of 20 deaths, 1 was caused by apoplexy, and 1 by chronic myocarditis; 1 was the result of drowning not due to aviation; 17 were due to airplane crashes, and included 4 resulting from fatal submersion, and 13 resulting from multiple injuries. The most frequent cause of death was fracture of the base of the skull.

The dispensary at the naval air station is equipped to do first-aid and emergency work and to take care of a limited number of sick. It is essentially a dressing station, however, and all cases requiring operation or hospital treatment are sent without delay to the base hospital located about one-half mile from the station. The normal bed capacity of the dispensary is 40. One room on the first floor is now used as a ward and contains seven beds. This has been found

sufficient to accommodate the small number of cases with minor ailments not considered serious enough to send to the hospital. A very large room on the second floor is now being used as a detention ward for recruits and incoming drafts.

*Navy yard, Philadelphia, Pa.*—The present dispensary was placed in commission on October 5, 1918. It is a rectangular, two-story brick building. The lower floor contains 10 small rooms; the upper floor, the pharmacist's quarters, consisting of 5 rooms, 2 rooms used by the dental officers, and a bedroom and bath used by the officer of the day. The entire building is poorly and hastily constructed; the floors are badly made, the doors do not fit, and the plastering is already cracking. An additional bad feature of construction is the presence of unlagged steam pipes directly beneath the floor, and also the fact that any repairs, either to steam lines running to the sterilizer, or repairs to the electric circuit can be made only by tearing up the floors. The dressing room is the only well-equipped one in the building, but it is too small. This causes much congestion, especially in the morning when the daily dressings are being done. There is no waiting room for either officers, yard workmen, or women. The most objectionable feature, however, is the lack of a small recovery or convalescent room, where cases awaiting transportation to hospital may be put to bed. In cases of apparent drowning, electric shock, gas poisoning, etc., no room is available for their reception. The present custom is to hastily rig a marine field cot in the examining room and turn the patient in. It is recommended that an additional two-story wing be constructed on the ground to the west of the present building, which will contain a small recovery room with four beds and a waiting and consulting room for officers and their families.

On April 6 a board was appointed to prosecute an antimosquito campaign. The order convening this board required that measures be recommended, not only to eradicate mosquitoes for the present season, but for such permanent ditching as would prevent breeding in future years. The first work of the board was to make a complete sanitary survey of the entire reservation, and to chart in areas on blue prints of the yard. The preliminary report made recommended that new ditches of a temporary character be dug in 15 different sections of the yard. A force of 30 laborers was asked for. Large pools of water were located in 24 areas, which were to be filled in. In 11 areas underbrush and weeds were to be cut down. The services of two roofers and tanners were secured, and the eaves gutters of all buildings were cleaned out. This was a big job, and undoubtedly removed many sources of mosquito breeding. Oiling swampy areas and small pools had previously been carried out by the yardmaster. No change was recommended in his method, which was thorough and complete. It was also recommended, and carried out, that all manholes and catch basins in sewage and electric conduit systems be niter caked. In the stowage of new material of all kinds around the yard it was recommended that enough space be left underneath for the passage of air and the application of oil, if necessary. All tin cans were to be punctured, crushed, and collected in one pile, where they could be removed from the yard. It was recommended also that all small boats be capsized, or if for any reason this should be impracticable, that the plugs should be drawn and the bilges oiled. It was later recommended that all boats should either be kept in a shed or

be covered with tarpaulins. A representative of the Philadelphia City Board of Health cooperated with the board and made frequent visits to the yard. This work was also watched with interest by the Pennsylvania State Board of Health. A letter was received on May 24 in which such technical assistance as the board might desire was volunteered. Accordingly, the board had several conferences with both the city and State authorities and resolved to work along the original plans outlined. A synopsis of this plan was submitted to the State board of health, with a request that the State authorities suggest any additional measures which they might desire. In reply to this the State board of health stated:

Judging from these reports and from our recent conversation, it appears to me that the mosquito work in the navy yard is exceptionally well organized. No detailed comment is necessary.

The work was therefore carried out along the above lines, but the board was handicapped by lack of funds sufficient to hire the necessary number of laborers. A great deal of the ditching was done by enlisted men attached to the receiving ship. Unfortunately for the success of the plans, the past spring, summer, and early autumn were very rainy. Mosquitoes were very abundant all through the city and especially in its southern section. It is believed, however, that the work done will show results in the coming summer, as a great deal of marshy ground has been filled in; there are no large pools left, and all underbrush and weeds have been cleared away.

During the year 1919 there were examined:

Classified labor—	
Male.....	7,731
Female.....	16
Unskilled labor—	
Male.....	3,279
Female.....	31
Total examinations.....	11,057
Rejected.....	1,783
Reexaminations by this office of applicants who were examined by outside physicians:	
Reexaminations.....	1,214
Rejected.....	154
Physical ratings on certificates of outside physicians:	
Ratings.....	3,478
Rejected.....	124
Sick certificates passed on.....	1,201
Yard workmen requesting leave of absence due to sickness:	
Workmen examined.....	363
Leave granted to.....	279
This office has been examining workmen who claim to be sick, and want time off, since September, 1919:	
Total number examinations for 1919.....	12,696
Total number rejections for 1919.....	2,021

All dealers in foodstuff wishing to transact business in the yard are first visited by the medical officer and their place of business inspected, after which, if found satisfactory, they are given permits by the captain of the yard and notified that their delivery wagons must stop daily at the dispensary for inspection of contents. Several firms have been denied permission to deal in the yard, on account of insanitary places of business. One in particular, the Quaker City Milk Co., refused to make the changes recommended by the medical officer, and requested the commandant to appoint a board for re-

inspection. The report of this board was most unfavorable, and accordingly the Paymaster General, United States Navy, debarred the Quaker City Milk Co. from submitting bids in the future. Due to the thoroughness of this method of inspection, no cases of food poisoning or gastro enteritis from milk or ice cream have occurred in the yard during the year.

There are six dental officers attached to the yard and Marine barracks. Approximately, there are about 6,000 men who are entitled to dental services by the yard dental officers. The total number of patients for the year 1919 was 2,912; the total number of treatments, 5,421.

During the past year no diseases have occurred in epidemic form. Numerous malaria cases have been noted in men returning to the United States from tropical duty, but no transmission of disease occurred while at this post. The rations supplied to the enlisted personnel have been the subject of careful supervision by the sanitary officer during the year. The food has been well cooked, wholesome, and of sufficient variety. No cases of illness have been seen which could be attributed in any way to the food at this post.

This navy yard is supplied with filtered water from the municipal water system of Philadelphia for drinking, bathing, cooking, and washing purposes. Unfiltered Delaware River water is supplied to the fire mains and toilets. This water is really dilute sewage. The clean and unclean water pipes in many cases are parallel and close together. It is believed that this system is a vicious one and fraught with much potential danger. In the last annual sanitary report from this post mention was made of a severe outbreak of enteritis, the cause of which was finally traced to an unauthorized interconnection between these two systems made by a plumber because the pressure was low in the filtered water mains.

The medical department of the barracks is located on the third floor of barracks building No. 1. It consists of a large ward capable of accommodating 20 men as a maximum capacity. Under ordinary conditions 10 beds are maintained ready for instant use. A moderate-sized room affords a dressing and sterilizing room. An intermediate room between ward and dressing room is used for eye, ear, nose, and throat work and also for the distribution of diets. A dental office, dispensary, storeroom, bath and toilet, and large administrative office are included. A small room is used for venereal prophylaxis and for cases under treatment. The lighting is excellent and the ventilation good. The heating is fair.

*Receiving ship, Philadelphia, Pa.*—The average complement during 1919 was 3,633. The administration of the entire medical department is conducted from the medical examining room by the senior medical officer. One additional medical officer is assigned to examine all men for enlistment, reenlistment, discharge, and transfer. Every man passing through the receiving station is seen, his health record verified, and note made of whether he has or has not had anti-typhoid and cowpox vaccination. No man is transferred from this station unless he has a health record, typhoid prophylaxis and vaccination completed, and is free from all venereal and infectious diseases.

A small garage just south of Building No. 29 houses the Cadillac ambulance which has been in constant use at this station for the past

year and a half. This is a most necessary and essential asset to the medical department. This ambulance has conveyed all patients taken to the naval hospitals at League Island and Grays Ferry Road. In addition, several emergency calls are made daily to bring men attached to the receiving station who become ill while at home. Whenever a man elsewhere is on leave and becomes sick in the vicinity of Philadelphia the commandant notifies the receiving station to handle the case. This often involves long trips being made, sometimes as far as 50 or 60 miles each way. The heavy limousine type of ambulance we have makes these trips without affording any great discomfort to the patient, as would naturally be the case if an ambulance of lighter type had to be used.

The main sick bay is located in the northeast corner of the camp. There are four medical officers on duty at this infirmary for side visits to men sick at their homes. In addition a doctor is required to be on duty here day and night. One dental officer is also assigned to this dispensary. He has the full Navy standard equipment, a roomy, well-fitted office, and whenever practicable is given a hospital corpsman, who acts as his assistant, and is responsible for the cleanliness of his office. Another dispensary is located in the approximate center of the camp and is devoted entirely to the care and treatment of venereal and genito-urinary cases. There are three doctors on duty here and 7 hospital corpsmen. There is a small sick bay for handling prisoners. It contains a ward of four beds, with a small dressing room and a one stool head with shower bath adjoining.

The increase in the admission rate for venereal disease at this station during the past year was due mainly to the influx of infected men from cruising ships and other stations. Of 262 cases of syphilis treated, 95 infections were contracted in foreign ports, 119 in other cities of the United States, and but 48 in Philadelphia and vicinity. Of 1,046 consecutive cases of gonorrhea, 113 cases were contracted in foreign ports, 538 in other cities of the United States, and but 395 in Philadelphia or vicinity.

During the early spring months repeated attacks of ptomaine poisoning occurred in the camp. Careful inspection of ice boxes, meat and canned goods failed to reveal the cause of the trouble. The uncleanly condition of the milk supply had been repeatedly reported and eventually the commandant appointed a board of sanitary inspection to investigate the Quaker City Dairy. The conditions prevailing at this dairy were so bad, the premises and outfit for handling milk were so lacking in every modern appliance, even of the simplest character, that a very adverse report was made. It was recommended that no milk from this source was to be received at the navy yard until the dairy could meet the essential requirements of a modern up-to-date establishment. No further poisoning by food has occurred, therefore it is assumed that the entire trouble emanated from the milk supply.

*Navy yard, Portsmouth, N. H.*—The health of the yard during the year has been excellent. No disease has occurred in epidemic form, except a mild epidemic of influenza at the naval prison. The principal work of the medical department is the care of injured yard employees. This work is steadily expanding and promises to be one of the most important fields of activity of naval medical officers in the future. It is a field, too, in which they can not only gain valu-

able professional training but render important service to the Government. During the year 6,194 new cases were treated at the dispensary. As there are on an average three subsequent treatments for each case, it will be seen that between twenty and twenty-five thousand treatments or surgical dressings were attended to at the dispensary during the year. The yard dispensary should be provided with every facility for taking full charge of these cases. Many injury cases desire to be treated at their homes, and to give them proper medical attention there a medical officer must frequently visit them. No suitable conveyance is provided for this. The ordinary naval ambulance is too cumbersome and its maintenance too high. In the past a Ford touring car, donated by the American Red Cross, has been used and has met the need fairly well, but a car adaptable for transporting one stretcher case or several ambulant cases and for carrying medical officers on their visits to injured employees treated at their homes would be more suitable.

The yard dispensary building is admirably adapted for the purposes for which it is used. It is well located, of excellent construction, and its interior is most conveniently arranged and equipped.

*Naval prison, Portsmouth, N. H.*—During the year the sanitary condition of the grounds and buildings connected with this reservation has been excellent. It has been possible since early in the year to give each man quartered in the barracks or main building an entirely adequate amount of floor space, heat and light; and the facilities for ventilation have been ample. Owing to the decreased personnel the so-called first-class quarters on the third floor of the administration building were eliminated early in the year, greatly reducing the chances for the spread of respiratory infections and contagious diseases. Later it became possible to also exclude, as quarters for men, the top of the cell block, so that all men confined here were either in the cell block proper or in the barracks.

Early in the year there was established an adequate and up to date laundry which has been a great factor in maintenance of cleanliness and sanitation. There is also a large steam autoclave for the sterilization of clothing, mattresses, etc.

The following is a résumé of the sick report for the past year:

Patients admitted.....	1,155
Patients readmitted.....	145
Patients invalidated from service.....	80
Patients transferred.....	237
Sick days.....	10,040

No deaths have occurred in the prison.

During the year the policy of careful and conscientious examination of men received at this institution has been adhered to. As the drafts became smaller this duty was easier and much of the freedom from respiratory infections can be attributed to this one factor alone. It is the opinion of the medical officer that practically all men improve in general health of body and mind while here. Healthful work and exercise is afforded and required of all. There is a good, complete library and a general school. These coupled with frequent entertainments by the prisoners tend to dispel the natural gloom of confinement.

Careful psychiatric examination of prisoners has been conducted during the past year and many men have been invalidated from the

service for mental defects. The greater number of psychiatric cases on this station are borderline cases and require little treatment other than a proper understanding of their mental status, so that too much may not be required of them. The medical officer has always been able to place these patients in suitable surroundings so that they have been under observation while doing the required routine prison duties.

It is recommended that some increase in ration allowance be made to provide for a better class of meats, containing more fat in an assimilable form. A careful study of the ration as served here shows that if the caloric value of food is taken as a standard for quantity and quality, the ration is adequate except for a slight undersupply of fats. The meats served here are mostly frozen storage meats—shoulder clods, sirloin butts, and veal, and while they have a high caloric value they are not to be compared as an article of diet with fresh meats recently killed and containing a good content of fat. While the calorie is at present the standard of food value, recent experimental evidence tends to prove that it is only one standard of measurement and not necessarily the most important. Clinical results will still be the safest guide until food values are better understood. Prisoners on hard labor here can not always get the necessary energy and force required for steady work out of the present ration, which in itself by present standards seems sufficient. Office laborers and clerks seem to do well.

*Yard dispensary, navy yard, Puget Sound, Wash.*—The changes in the yard incident to the war have been considerable. A greater expansion is at present under way which will greatly increase the size of the yard. The number of civilian employees has been steadily growing. The following is a comparison with previous years:

Date.	Officers and families.	Enlisted male.	Enlisted female.	Civilian employees.
Dec. 31, 1916.....				1,689
Dec. 31, 1917.....	73	30		4,789
Dec. 31, 1918.....	131	129	101	5,840
Dec. 31, 1919.....	74	35		5,860

Physical examinations:

For yard employment -

During 1916.....	2,785
During 1917.....	8,418
During 1918.....	8,189
During 1919.....	7,799

Naval reservists placed on inactive duty during 1919..... 405

Vaccinations during the year:

Yard employees.....	3,496
Navy personnel.....	3
Typhoid prophylaxis, navy personnel.....	12

There are two dry docks at this yard. Each one is fitted up in such a manner that the ship's heads, etc., can be kept in commission when a ship is in dock. The toilets for civilian employees working at the docks are insufficient. The disposal of garbage from ships in the dry docks and at the piers is not satisfactory. The total number of injuries treated was 15,022. The number treated during the year

of 1918 was 15,810. There were four cases of smallpox, four cases of encephalitis lethargica, and one death.

*Naval station, Tutuila, Samoa.*—The new barracks, completed and occupied during the year, are ample, comfortable, and excellent from a sanitary viewpoint. The quarters are cool and well ventilated, and entirely screened throughout. The screening of the upper story (the sleeping quarters), incloses the wide veranda which extends entirely around the building, thus affording additional sleeping quarters in the open air. The galley, bathroom, toilet and washroom are all in a separate building, and are well appointed throughout. These quarters are not occupied by the crews of the *Fortune* and *Samoa*. There the men are not so comfortably situated. The *Fortune*, in particular, is not adapted for berthing and messing the crew in this climate, the living spaces being small, hot, and poorly ventilated. In practice, these vessels are tied up at the wharf, on which the crews mess and sleep. This is a satisfactory arrangement, excepting for the short periods during which the wharf is covered with freight or when the *Fortune* is at sea on short cruises. There is no mosquito protection on the wharf. Mosquitoes are not very troublesome there, however, especially if there is any breeze.

The facilities for the treatment of the sick are satisfactory in the main. The dispensary ward is sufficiently large, well ventilated, and well lighted. The storerooms are not large enough for present needs. The method of messing the sick is not satisfactory, as the food must all be carried from the station mess, a distance of a quarter of a mile. With patients subsisted in this way, there is difficulty in obtaining suitable special diets, but this seems unavoidable. The operating equipment is sufficient for the station. Laboratory work is hindered by the lack of continuous electric current. The new reservoir, formed by a large dam across a cleft through which flows a spring-fed stream, was placed in commission in April, 1919, and assures a permanent supply of excellent water. A steam laundry was established during the year, and all enlisted men are required to have their laundry work done there, or do it personally.

The system of caring for the natives as outlined in previous reports has been continued, and somewhat extended. A new native house has been built at the branch dispensary, Leone, for patients under treatment there, whom it is not considered suitable or expedient to bring to the Samoan Hospital. A graduate Samoan nurse is stationed there. In June, 1919, two Samoan nurses were graduated, having completed the two years' course of training. As has been reported previously, the graduate nurses are kept going from village to village to give first aid, simple treatments, home instruction in hygiene and sanitation, and advice and instruction in the care of children. Patients requiring hospital care are urged to come in. It is believed that many lives are saved in this manner, and that American Samoa shows one of the rare instances where a Polynesian people is increasing, instead of diminishing, in numbers. Many children die at the time of weaning, as then it is an old-established custom to immediately feed the infant such articles as taro, bananas, and bread-fruit, in many cases when as young as 6 months. Steps have been taken to obtain pure-bred goats, the plan being to eventually give each village its herd of milk goats for infant feeding. Cows do not thrive here as well as goats; the latter can be more easily fed and



cared for, and can be milked at the frequent intervals required under conditions where milk rapidly becomes unfit for use after being drawn.

The bureau donated 1,500 tubes of arsphenamine for the treatment of yaws, which was increasing. Beginning in April, 1919, a village to village campaign began, during which every village in American Samoa was visited, every native examined, and arsphenamine administered to those requiring it. Incidentally, at the same time, antipneumococcus lipo-vaccine was given unless contraindicated. The villages located about the naval station were required to send all residents to the Samoan Hospital for examination and treatment. Fifteen days were required to cover the ground over Tutuila and Annuu, and five days for the island of Tau, Ofu, and Olosega in the Manua group. Travel from village to village was by land or by boat. Overland travel was on foot, and all baggage and supplies were carried by native bearers. The islands of the Manua group were reached by means of the station tug, *Fortune*. The following statistics are given: Population at last census, 8,305. Number found to have some typical clinical manifestation of yaws, primary or secondary, or "mavivaevae" (sickness of feet), an exfoliative dermatitis of the soles of the feet, with deep fissures, and a similar lesion of the palms, which is believed to be tertiary yaws, 1,779.

	Per cent.
Primary and secondary lesions.....	34
Tertiary lesion, including "mavivaevae".....	66

#### Results.

Cases.	Cured.	Im- proved.	Unim- proved.
	Per cent.	Per cent.	Per cent.
All cases.....	83	5	12
Primary and secondary.....	91	6	3
Tertiary.....	80	5	15

In the cases cured, the usual almost magical results were noted, the lesions disappearing within 10 days. The arsphenamine was given intramuscularly, the dose varying from 0.1 to 0.6 gram. The incidence of yaws is again apparently slowly increasing. It is very difficult to induce the natives to bring yaws cases promptly to hospital. They believe that when a child reaches a certain age it should be deliberately exposed to infection if yaws have not appeared. The problem of exterminating yaws will not be solved until by very frequent inspection we are able to bring in all patients for segregation as soon as a lesion appears. It is considered that such a procedure will soon be possible.

Practically all Samoans living under native conditions have hookworms, unless they have been recently treated. Village latrines are in existence, but with only one or two latrines to a village it is impossible to prevent promiscuous defecation. Our present plan is to require the construction and maintenance of latrines of native material for each family. It is expected that this system will be inaugurated during this year. The Samoans seem to be surprisingly free from the usual effects of hookworm infestation. Middle-aged natives who have probably been infected since childhood are stalwart, showing 90 per cent plus of hemoglobin.

The Navy nurses do excellent work, and in the case of patients and instruction of native nurses at the Samoan Hospital are of the greatest value. It is considered that in the selection of chief nurses for this detail particular care should be taken to obtain a nurse with an interest in social service and public health. One such with a missionary spirit would be ideal. We have been particularly fortunate in this respect in the present chief nurse, Miss Mansfield, and her predecessor, Miss Workman.

Incessant quarantine vigilance against influenza is continued, without, however, any interruption of commerce. We are more or less constantly in danger, because of the alternation of the seasons between Australia and New Zealand and the United States. When the epidemic is subsiding in one hemisphere it flares up in the other.

From a hygienic point of view, the present type of station ship (a tug) is not suited to this climate. It does not afford proper living facilities for the crew, and it is not possible to make a cruise of sufficient distance to afford periodical change of climate and recreation necessary on this isolated tropical station. The Samoan Hospital drug store is still successful and prosperous, and well justifies the wisdom and foresight of those who conceived this idea as a means of providing funds for the support of the Samoan Hospital Training School. The total gross cash receipts for the calendar year 1919 were over \$29,000.

*Recommendations.*—(a) That a pavilion be built as previously recommended for the treatment of sick officers and their families.

(b) That a station ship of the *Annapolis* or *Princeton* type be assigned to this station.

(c) That the present small frame building, 12 by 18 feet, used as a medical storeroom, be enlarged to double its present size.

*Naval air station, San Diego, Calif.*—The large extent of the station and the varied and hazardous pursuits of the personnel necessitate considerably more work on the part of the medical officers than on almost any other type of naval duty. There is at all times during flying hours one hospital corpsman on duty in the boat used for rescue work. At other times there is an additional hospital corpsman on duty during special bombing or target practice. One medical officer stands ready at all times for rescue work. The personnel as given does not include 75 civilian employees, a number of marines, nor a civilian workman crew doing construction work on the island that will vary from 200 to 600 men. All of these are by the isolated position of the island entitled to first-aid and temporary treatment when injured at their work. This alone adds considerably to the work of the medical officers.

The dispensary is still located in the old wooden building but will be moved to the new quarters in the very near future. The wooden building contains 14 small rooms and has been very satisfactory for temporary use. It is entirely inadequate and unsuited for permanent occupancy. The new dispensary is ready for occupancy except for water and sewer connections in the operating room and dental offices, and a few other minor changes which are absolutely necessary before it can be used for the purpose for which intended. The internal arrangements of this building would never have been approved by any medical officer. As it now stands it must be used for the purpose intended even though it is very inconveniently arranged. The object

now is to make as few changes as possible in order to make the building available for use as a dispensary and small emergency hospital.

There are certain duties and activities required of the medical department attached to an air station, which do not obtain at other naval stations. This station's activities being devoted to the training of aviators, the routine flying practice as well as the routine gunnery and bombing practice and the repair and upkeep of planes, the work of the medical department is added to in the following particulars:

(1) A routine periodical examination of all officers and men who have flying orders is made by a medical officer detailed for that purpose. This is very complete and thorough and the fact that there have been but few crashes on this station is considered proof that it is efficient. A weekly examination of all pilots and men on duty involving actual flying is made and the medical officer has the authority to remove from the flying list any man who is, in his opinion, unsafe in the air.

(2) At least one medical officer is required to be constantly on watch during flying hours, and the entire medical personnel is constantly on the alert.

(3) During the year there have been a number of minor crashes that resulted in destruction of property, but only two that caused serious injury or death to any of the personnel:

(a) On March 14 an *N-9*, with Ensign Kerr as pilot and Ensign Chase as observer, crashed in the bay while flying for the entertainment of members of the House Naval Affairs Committee. Ensign Kerr received considerable laceration of the face and a spiral fracture of the right arm. Ensign Chase suffered from prolonged immersion in the water and a laceration of the upper lip. Ensign Kerr released himself from the plane, but Ensign Chase was held under the water for some time by the wreckage. It was conceded by all present that the work of the hospital corpsman on the rescue boat was the controlling factor in saving the life of Ensign Chase.

(b) The other serious crash occurred on August 5, at 9 p. m. An *H-boat* with Lieut. (J. G.) O. F. Kilmer as pilot, W. C. Baker, a civilian photographer, and S. E. Devese, Elect., first class, returning from photographing the fleet, crashed in the bay, turning over while making a landing. Lieut. Kilmer and Mr. Baker were thrown from the plane and sustained only minor injuries, while Devese was caught in the wreckage and died as a result of a fracture of the frontal bone. His body was removed from the wreckage and artificial respiration was used, but in vain.

*Northern district, Santo Domingo, Dominican Republic.*—So far as can be estimated from the insufficient data available it is probable that the following communicable diseases cause the greatest economic damage among the civilian population:

Veneral diseases; malaria (benign and malignant); hookworm disease; enteric diseases, typhoid and paratyphoid fever, enteritis, and perhaps dysentery; dengue; influenza (when pandemic); pneumonia.

The severe anemias and cachexias of chronic malaria and hookworm disease are uncommon. Filariasis and trachoma are rare, although the latter has recently been reported in Sanchez. Trichinosis is common in hogs but rare in man, because thorough cooking is a custom of the country.

Health laws and regulations have been revised by Commander Reynolds Hayden, Medical Corps, United States Navy, the chief sanitary official of the Dominican Government. These replace the old sanitary laws and regulations of the Republic, which were not entirely in accord with modern public health knowledge. The Republic is now divided into 12 sanitary districts. Each district organization includes the district sanitary officer and his staff, consisting of a chief

inspector, subinspector, escribiente, street cleaners, and carters. The new laws and regulations are well written and well adapted to the needs of the country. They have been placed in force gradually during the past year and a half so that little opposition has arisen. The northern district has three ports to which vessels usually come. Monte Christi, Puerto Plata, and Sanchez. Occasionally vessels stop at Samana, and it is possible for small sloops and schooners to go to some of the small villages on the northern shore for cargo and passengers.

Of the six quarantinable diseases (cholera, yellow fever, smallpox, typhus, plague, and leprosy) smallpox, plague, and yellow fever are the most to be feared. There is an excellent natural protection against yellow fever in that vessels do not arrive from any port now infected. Quarantine is the only protection against smallpox because the island population at present is practically unvaccinated. For protection against plague rat guards must be used on all hawsers and other connecting points between vessels, docks, and lighters. Fortunately, rats are not very abundant in the northern district. Quarantine officials should especially and definitely examine all immigrants for trachoma. This disease is not common in the northern district, but it is present.

During the early days of the military government sanitation was in the hands of local communal committees authorized by the central Dominican Government. At that time medical officers serving with marines attempted, more or less successfully, to guide, direct, and assist local authorities, but the work of these officers, although excellent in intent and often in actual accomplishment, was not carried on in a consecutive and coordinated manner because often a medical officer had to leave a given locality just about the time he had completed a survey of the situation and was about to achieve results.

In August, 1918, in accordance with executive order No. 196, published by the military government, the senior naval medical officer on duty in each Province was appointed provisional chief provincial sanitary officer. For a period of six months, until January, 1919, this order gave naval medical officers serving in Santo Domingo opportunity to be of real service in matters of sanitation. Executive order No. 247 made radical changes in their relation to work among civilians. For purposes of health administration the Republic was divided into sanitary districts, the geographical limits of which coincide quite closely with the Provinces. This order directed municipalities and other local communities to set aside fixed percentages of their total annual incomes (10 per cent or 15 per cent, according to wealth) for purposes of sanitation, street cleaning, etc., and provided for a district sanitary officer in each district, directly responsible to the chief sanitary officer of the military government, although subject to the general directions of the chief provincial sanitary officer. Senior naval medical officers were placed in a difficult and peculiar situation by these two orders, with dual responsibility and conflict of authority locally. After a year of unsatisfactory organization naval medical officers on duty with the marine forces were definitely relieved of their responsibilities and duties as provisional provincial sanitary officers by executive order No. 338, effective January 1, 1920. Thus relieved of responsibility for the supervision of sanitary officials,

street cleaning, disposal of garbage, and infraction of sanitary law, the naval medical officers of the Fourth Regiment, United States Marine Corps, will be able to devote their energies and professional abilities to other civilian medical needs in so far as their military duties required by Navy regulations and naval instructions will permit. It is considered proper for naval medical officers, according to individual interest and special ability, to make effort in every possible way to aid the small number of civilian physicians, about one to ten thousand of population, in their burden of caring for the sick and injured.

*Naval training station, San Francisco, Calif.*—The average complement of the station for the year and by quarters, the corresponding number of medical and dental officers and hospital corpsmen, are shown below.

	First quarter.	Second quarter.	Third quarter.	Fourth quarter.	Year.
Complement.....	2,024	2,308	1,977	3,486	2,454
Medical officers.....	14	10	7	8	10
Dental officers.....	8	6	5	5	6
Hospital corpsmen.....	82	50	28	26	46

The complement was smallest in February, 1,684, and largest in December, 4,460.

Below is a table showing monthly admissions, as reported weekly to the bureau by telegram, and the number of hospital corpsmen available for the corresponding months:

Months.	Admissions to sick list.	Hospital corpsmen.	Months.	Admissions to sick list.	Hospital corpsmen.	Months.	Admissions to sick list.	Hospital corpsmen.	Months.	Admissions to sick list.	Hospital corpsmen.
January.....	228	88	April.....	408	55	July.....	271	33	October...	390	24
February.....	116	88	May.....	346	61	August.....	304	23	November...	600	25
March.....	182	66	June.....	413	34	September.	235	28	December.	565	28

It will be noted that during the months in which we had the largest number of admissions we also had the smallest number of hospital corpsmen with which to care for them. Beginning in September it was decided to isolate all acute respiratory affections in order to prevent the spread of colds and sore throats, and to have the men in the best physical condition, should influenza and pneumonia make their appearance. The arrival of the Pacific Fleet created a demand on this coast for enlisted personnel, and to meet this demand recruits in large numbers were sent from recruiting stations all over the United States. During the four months—from September to December, inclusive—we received 3,635 recruits, or practically 30 a day, including Sundays. These two factors were, in a great measure, responsible for our large admission rate. The increase in the number of recruits received lead to many additional demands upon our small number of hospital corpsmen, and it became necessary to divert some from sick quarters to the recruit house and detention barracks. An estimated complement of 95 hospital corpsmen, of all ratings, for

3,000 men under training, was submitted, and a complement of 56 was allowed, of which number we never had more than 50 per cent after August, and most frequently the percentage was smaller. The lack of hospital corpsmen has been keenly felt at times. It has been necessary to send to the naval hospital, at Mare Island, those cases demanding extended hospital treatment. Our attempt to conduct a 150-bed hospital sick quarters and care for all the other details incident to a training station of practically 3,500 men, with from 23 to 28 hospital corpsmen, most of whom were green and inexperienced, is probably without a parallel in the service.

During the year we received 5,636 recruits, and surveyed and discharged 406, or 7.2 per cent. Very few surveys were held in compliance with Alnav 194. The total surveyed for the year was 452.

The total admissions for contagious and infectious diseases were 982. Of this number 612 were mumps and 146 were venereal diseases. The remainder was divided among measles, pneumonia, malaria, scarlet fever, cerebro-spinal meningitis, and influenza.

The appearance of many cases of acute pharyngitis and follicular tonsillitis in June led to an inquiry as to its probable cause. The Navy Relief Canteen was selling ice cream procured from a local company, and the general messes were serving ice cream secured from another local company. This cream fell under suspicion and samples were analyzed. They were found to be contaminated with streptococcus hemolyticus, pneumococcus, and micrococcus catarrhalis. The bacterial count was found to be in excess of 300,000 per cubic centimeter in one case and in excess of 400,000 in the other. The sale and issue of ice cream was prohibited by the commandant on the medical officer's recommendation. Samples were submitted by all the ice cream companies bidding for the contract from time to time. The colon bacillus was found in one specimen examined in June. One company finally submitted a sample that was satisfactory, and its cream was admitted. Subsequent examinations showed it to be badly contaminated, and its use was again prohibited.

*Receiving ship, San Francisco, Calif.*—Report of psychometric examination of 284 recruits received at the United States naval training station, San Francisco, Calif., from June 1 to 30, 1920.

Summary of the scores made by 284 recruits who were given the Stern's group test:

Mentally:

- 74, or 26 per cent, were scored 4 superior.
- 55, or 19.3 per cent, were scored 3 high average.
- 45, or 15.8 per cent, were scored 2 low average.
- 110, or 38.9 per cent, were scored 1 inferior.

Educationally:

- 1, or 0.3 per cent, were scored 4 superior, college student.
- 98, or 34.8 per cent, were scored 3 high school student or graduate.
- 51, or 17.9 per cent, were scored 2 eighth grade graduate.
- 134, or 47 per cent, were scored 1 less than eighth grade.

Industrially:

- 2, or 0.6 per cent, were scored 4 skilled.
- 24, or 8.6 per cent, were scored 3 experienced.
- 249, or 88.1 per cent, were scored 2 unskilled.
- 9, or 2.7 per cent, were scored 1 misfits, shifting.
- 110, or 38.9 per cent, were reexamined on account of inferior mentality as shown by Stern's test.
- 3, or 2.9 per cent, had a mental age of 13 years 6 months.
- 5, or 4.9 per cent, had a mental age of 13 years.
- 68, or 58.9 per cent, had a mental age of 12 years 6 months.
- 16, or 15.8 per cent, had a mental age of 12 years.

## Industrially—Continued.

13, or 12.8 per cent, had a mental age of 11 years 6 months.

2, or 1.9 per cent, had a mental age of 11 years.

1, or 0.9 per cent, had a mental age of 10 years 6 months.

2, or 1.9 per cent, had a mental age of 9 years.

One hundred and eighteen recruits are under observation (follow-up cases); nine have been admitted to school for illiterates; eight are under observation for nervous or mental diseases; and one has been surveyed on the ground of constitutional inferiority.

*Submarine base, San Pedro, Calif.*—After careful study of the sanitary aspects of the various submarines attached to this base the medical officer and the commanding officer have concluded that no vital structural changes are required in them except to install ventilation in the forward end of all the *H* and *L*-boats, as has been done in a few of them. It has been found that without ventilation in the forward compartment, when cruising under unfavorable conditions at sea, unless artificial ventilation has been provided, the air is very bad. But in a general way, these boats do not make long cruises, and the question is one really more of comfort than absolute necessity.

On a previous occasion the medical officer recommended that some necessary man on each submarine be given a course of intensive first-aid training and be then called upon to keep the first-aid equipment on each boat up to the given standard, and to do necessary first-aid work when the occasion arises. Every submarine officer to whom this plan has been suggested considers it an excellent one, and one commanding officer told me that a hospital corpsman who had reenlisted in some other rating and had become a member of his crew had on several occasions given efficient first aid which he considered had, in one instance at least, resulted in the saving of a hand. At the present time, through an order issued by the commander of the base, there is being conducted a school for intensive first aid for two men from each submarine, with this idea in view.

Questioning brings out the fact that the toilet provided on a submarine is practically never used, except when the boat is actually submerged. When going on extended cruises, some makeshift toilet seat is built on deck for the use of all hands. It would doubtless be a good plan for some person to design a proper toilet seat to be used for this purpose, and to be issued as part of the equipment for each boat. The ration is in all respects satisfactory and sufficient. In this locality regular supplies of fresh fruits and vegetables are to be had all the year around. A Government inspector, who belongs to the Department of Agriculture, is regularly stationed here and inspects all supplies for the station, as well as supplies delivered at the station for the various ships of the Pacific Fleet. His services are very useful. On a few occasions we have asked the health authorities of the city of Los Angeles to examine a few samples for us, and found them very glad to cooperate and very efficient in their work.

*Naval ordnance plant, South Charleston, W. Va.*—In June the dispensary moved to a small building of five rooms, located next to the Board of Labor Building and connected by a short passageway. The physical examination room, vaccination room, drug room, and medical storeroom are in the Board of Labor Building, and the

medical officers' office, chief pharmacist's mates' office, surgery, laboratory, venereal prophylactic room, and hospital corpsmen's sleeping room are in the dispensary building. The arrangement is very convenient, but the Board of Labor Building is only a temporary one; the dispensary is made from an old frame house, and both will have to be replaced in the future by permanent buildings. The complement consists of two medical officers, one chief pharmacist's mate, and three pharmacist's mates of the lower ratings. There is also a female general helper, a practical nurse, who has been of invaluable assistance. During 1919 the paper work has been brought up to date with card-index systems so that the medical history of each employee can be quickly located. There have been 6,095 physical examinations of applications for employment and all men have been vaccinated and given typhoid prophylactic as employed. The number of major and minor injuries are out of proportion to the number of men employed (about 2,000) because of the nature of the work being done, and the dispensary force is rarely idle during working hours. There is one pharmacist's mate on duty at all times, as the plant works three shifts on some jobs. Directly under the supervision of the medical officer there is a sanitary squad consisting of six men and a team. The leading man of this squad reports to the medical officer daily and spends his time inspecting all over the plant and supervising the work of the men. All rubbish is handled and burned in the incinerator, latrines are limed and burned out, and any insanitary defects are corrected as found. This squad has been a distinct help and we passed through last summer without any diseases and the place was kept in very good sanitary condition in spite of adverse circumstances. In South Charleston the general sanitary conditions are somewhat improved, but still there is much to be desired. The health officer has little authority and no money and the town is bonded to its limit. A sewer system has been well started and most of the pigsties have been done away with. It was found necessary to call in the Federal authorities to rid the town of houses of ill fame. There were 12 cases of typhoid fever reported to the health officer of South Charleston during 1919, but as only two doctors out of the six here ever reported anything it is likely that there were more.

*Thirteenth naval district.*—Smallpox is more or less endemic within the thirteenth naval district which must be attributed to the innumerable isolated logging camps where it is impracticable to come in contact with the loggers for the necessary vaccination. Medical men in public health work extending over several years, state that no severe cases of the disease contracted in this section have been observed. The possibility of exposure of enlisted men on liberty or leave to one of these mild and probably unrecognized cases is always present, especially during the winter and spring months. The naval training camp, Seattle, Wash., developed four cases of smallpox amongst its enlisted personnel during the period of January 6, to February 24, 1919.

Again, recruiting had to be suspended in the vicinity of Yakima, Wash., from February 20, 1919, to April 9, 1919, on account of a goodly number of mild cases of smallpox. This measure was resorted to after a consultation with the State health commissioner. He thought



it might spread the disease not only among the enlisted personnel at the navy yard, Puget Sound, but also in the city of Seattle.

World-wide campaigns for the control of venereal disease have brought the social relations of individuals and their sex expressions into a peculiar prominence in this district. Considerable time, thought, and labor have been devoted to it and undoubtedly good results have been obtained. The number of venereal cases admitted for the year 1919 under the cognizance of the military authorities at the navy yard, Puget Sound, Wash., are only 106. Every effort must be made to maintain this standard. In this connection the plan of procedure for this betterment is divided into two sections: (a) Educational work on suppression of social evil; (b) suppression of venereal disease.

Under caption (a) the system and organization are well established, with which plan we are all more or less well acquainted.

Caption (b) is still in the stage of infancy in that the enforcement of legislative laws relating to the detention, control, prevention, and spread of venereal disease is required before the ideals of this caption can be fulfilled. This has been accomplished to a certain extent in the State of Washington. With the hearty cooperation of the local representatives of the United States Interdepartmental Social Hygiene Board, Field Service, some success and advancement is being made in securing a place of detention for the reception, detention, and treatment of a limited number of persons coming within the purview of this caption. The want of money has been an obstacle in developing this scheme to its highest efficiency, but through the cooperation of the State health department and the officials of the cities adjoining the navy yard reservation, sufficient money has been arranged for in which the following plan is pursued at Puget Sound, Wash.:

The coworkers of the United States Interdepartmental Social Hygiene Board, Field Service, persuade persons with venereal disease, who are reluctant or unable to pay for medical treatment, to report to a civilian practitioner assigned for this particular purpose. Treatment can be had free of charge at this clinic where coercion is not resorted to unless it is absolutely necessary. With a view to increasing the popularity of this clinic every effort is made to treat the unfortunates with the utmost courtesy and respect and incidentally teach them the benefits and relief which can be derived from this free venereal clinic. This clinic is established for the purpose of protecting the civilian employees of the navy yard from venereal infection and, as a result, also the enlisted personnel of the Navy. The office of the medical aid is closely associated with these activities and has been instrumental in establishing such a clinic through the cooperation of the various organizations. The Washington State Board of Health has accordingly designated the medical aid to serve as a member of the advisory board, of which the State health commissioner and the director of the division of venereal diseases are members. As this venereal clinic was instituted only a month ago, no report as to the results of its activities can be submitted at this time.

Surgeon B. J. Lloyd, United States Public Health Service, sanitary advisor of the thirteenth naval district, was detached January 4,

1919. In order that this work may not be permitted to lapse, the municipal authorities of the adjoining towns to the navy yard made a request to the commandant that a sanitary organization be maintained by the Government in view of the fact that medical men in civil life could not be had, as the majority had enrolled in the military service of the Government. The medical aid was accordingly invested with the necessary civil power and authority and established an organization as follows:

District sanitary officer, in command (medical aid); two lieutenants in the Medical Corps, district sanitary inspectors; one hospital corpsman as yeoman.

The inspectors made a daily report to the district sanitary officer. They pointed out defects of a sanitary nature to householders and if this failed to secure results, a letter was written to the offender, giving him five days in which to comply with orders. If no attention was paid to this letter, prosecution under the law was instituted. Much work has been done with reference to the sanitation of places where food is handled, to the proper isolation of contagious diseases, and also to the water supply.

With the return of the medical officers to civil life it was deemed advisable to abolish the district sanitary organization on October 1, 1919, and to reestablish the local health authorities which existed during the prewar period. By a scheme of cooperation the medical aid safeguards not only the health and comfort of the Navy personnel within the navy yard, but also the civil employees of the Government satisfactorily.

This, together with the routine duties of receiving, checking and filing of, and recording service numbers on health records of enlisted men and officers on an inactive status, which now amount to about 10,000; the preparation of vouchers for all medical expenses of the thirteenth naval district; replying to the frequent requests of persons on an inactive status in the Navy for medical attention and care; furnishing copies of abstracts and entries in health records of men on an inactive status for the War Risk Insurance Bureau; tracing up deaths of those on an inactive status; preparation of Form N for the department, comprise the scope of the medical department of the thirteenth naval district.

*Navy rifle range, Virginia Beach, Va.*—The barracks are calculated for 600 men but can accommodate a larger number because of unusually good ventilation. The sick bay is a long, one-story, wooden building containing office, waiting room, dispensary, hospital corpsmen's quarters, a six-bed ward and necessary bathing and toilet facilities. Prophylaxis is administered but no venereal patients are treated on the station.

*St. Thomas and St. John, Virgin Islands of the United States.*—Sufficient time has now elapsed since the transfer to the United States of the Danish West Indies to permit a comprehensive view of the work done by naval administrators and to appreciate in particular the basal, constructive work accomplished by the energy and ability of our medical officers with a view to improving the living conditions of the inhabitants of these islands. By the example of the naval station, by educational measures and by wise regulations enforced with tact and discretion a standard of sanitary practices has been

established. This counts far more than success with a few individual cases benefited by brilliant operation or marvelous cure.

The first step in any uplift scheme of far-reaching importance was a study of prevalent conditions and diseases through the collection of vital statistics. A nomenclature of diseases was prepared and distributed and routine methods of reporting births, deaths, and incident diseases instituted. Statistics are now available for the year 1918. A preliminary survey of health conditions in the islands showed that there was (1) universal carelessness and ignorance in regard to the collection and storing of potable water; (2) very general constitutional impoverishment due to defective nutrition; (3) need of immediate attention to infant and maternal welfare; (4) inadequate municipal assistance for indigent sick; (5) lack of protection against typhoid fever. The last-named evil was corrected by requiring all persons between the ages of 5 and 45, unless excused for good and sufficient reason, to be inoculated. The vaccine was prepared at the United States Naval Hospital, St. Thomas, and administered at the Municipal Hospital to 7,366 individuals out of a population, for those ages, of something over 7,637, (census of 1917). Smallpox vaccination had been very persistently and systematically carried out under Danish rule but, as there is always evasion, intentional or otherwise, of ordinances like that of February 2, 1877, the islands were canvassed, as was done for the antityphoid campaign, to estimate the number of unprotected persons and to inform them of the requirements. The total number vaccinated was 888; of these 173 were under 1 year of age. Of the rest, only 79 had been vaccinated before.

The other unfortunate features are not so easily remedied. The food problem is of course intimately connected with economic and financial conditions, but something can be done by instruction regarding the needs of the animal economy and by eradicating parasitic diseases which lower vitality. Education will help also, but to a limited extent, in regard to drinking water; far more important is an adequate and well-guarded supply and systematic control and distribution. This involves, like most thoroughgoing sanitary measures, no small outlay of money, which was lacking. The latest report from St. Thomas is to the effect that at last the Government proposes to install a piped water supply and modern sewerage system to supersede the collection of water in insanitary cisterns and the highly objectionable local cesspools. This prospect is hailed with satisfaction by the naval medical officers who have been working devotedly for the general betterment of health conditions since a proper water and sewerage system are fundamental requirements.

The care of confinement cases has in the past been wholly in the hands of midwives educated and trained in Copenhagen. They were thoroughly capable but hindered by enormous difficulties from obtaining the results desired. It became necessary to provide successors or substitutes for these worthy women, since the supply would be exhausted in time, and to increase the facilities for the deployment of their real abilities. The first step to this end was the establishment of a small detached pavilion at the Municipal Hospital to which maternity cases could be brought, with attached rooms for a children's ward and accommodations for a nurse. This provided for 16 parturients a month, each to enjoy hospital residence for a

fortnight. The great desideratum was to remove expectant mothers from homes where ignorance, filth, and extreme poverty threatened health and life. The creation of an efficient municipal obstetric service accomplished this. All requests for the services of a midwife must henceforth be addressed to the Municipal Hospital where the midwives are now on duty. The desirability of confinement at home or at the hospital is determined on investigation and the case handled accordingly. A weekly obstetric clinic is held at the Municipal Hospital for purposes of instruction, to anticipate complications, to make all needed preparations for a safe delivery. While it is too early to demonstrate results by statistics, it is at least a hopeful sign that the mortality of infants under one year during the first half of 1919 was 19, which would give an estimated mortality of 38 for the year. The corresponding average mortality for the 10-year period, 1909-1918, was 70 per annum. Eleven of the 19 deaths may be classed as preventable (prematurity, congenital syphilis, hemorrhage of cord, colitis acute). While infant mortality is affected in a high degree by social customs, prejudices, and the degree of prosperity of a community, still a campaign of education, improvements in hygiene and special welfare work can accomplish much. Labor along all these lines is actively maintained.

Since the people will soon have to depend upon locally trained nurses, the establishment of a training school for them was indispensable. Systematic instruction, both theoretical and practical, is now carried on by Navy medical officers and nurses as a municipal activity. The curriculum has been carefully planned so that during its course pupil nurses may periodically exercise their functions in an outdoor department. The training school for nurses opens the way for the women of the islands to have a career interesting to themselves and of enormous value to the community. The centralization of the midwife service at the Municipal Hospital provides a means of giving practical instruction to the pupil nurses and to permit those who so desire to specialize in this field.

It was felt from the start that however useful the naval hospital, however liberally its facilities might be utilized for the public good, the limits in that direction were marked and fixed. Accordingly, the Municipal Hospital was made the nucleus of the efforts for general reform. The first step here was to provide personnel. So far as nursing was concerned, time must elapse for the development of native women, but their training was begun. Male help was rapidly developed. The building itself was wholly inadequate, lacking every feature of equipment and furniture except a few surgical instruments, and so primitive and unattractive, nay, repulsive and filthy, was the place that only the most helpless and forlorn patients in the community went there, and only to die. The sole means of transportation for the bedridden was a wheeled stretcher, handled by prisoners, under the direction of a policeman. Even with a prompt increase in municipal appropriations, the task of making the Municipal Hospital a real agency for good seemed beyond the possibility of accomplishment. The personnel needed to be increased and to be better paid in order to live better and be able to do more work.

The marked improvements finally carried out were due in considerable measure to the lively interest and liberal assistance of the American Red Cross, whose able representatives, Mr. H. S. Thomp-

son and Lieut. G. E. Foley, United States Army, visited the islands in April, 1918. Their primary object was to ascertain the need of the Navy personnel, but they immediately grasped the larger needs of the community as a whole and proceeded at once to secure liberal appropriations of equipment and funds. The war was then in progress and absorbing the principal energies of the Red Cross, but happily not to the exclusion of other vital matters. The war council voted \$27,500 for immediate purchase of equipment, and a year later an added \$15,000 was appropriated. Six months later the Municipal Hospital was in operation as an attractive, useful institution, with its rows of white enameled beds, with comfortable mattresses and springs, clean sheets, modern bedside tables, its completely outfitted operating room, etc. Here at last was a home to which the sick and suffering could resort with every prospect of enjoying that peace and comfort which begets hope of recovery and furnishes a reasonable assurance therefor. A Ford ambulance provides prompt transportation in decency and privacy. For the present the bulk of the laboratory work necessary for proper professional care of the sick is done at the naval hospital, but a beginning has been made toward rendering the Municipal Hospital independent in this respect. The number of patients admitted to the Municipal Hospital has risen from 421 in 1916 to 649 in 1918, an increase of 64.84 per cent.

The most recent step undertaken to promote health in the islands is the formulation of a sanitary code, which has been submitted to the bureau and is being carefully studied. It has been drawn up with every regard for the needs of a civilian community and is not as stringent as if intended for a military organization. The necessity for such an instrument is manifest. The naval administration is to be congratulated on the headway obtained in laying the foundation of a highly useful public health service. The officers on duty in the islands have been actuated by the highest and most disinterested motives and characterized by earnestness and ability. By the establishment of routine preventive measures against disease, the organization of municipal instead of charitable aid to the needy, the collection of vital statistics, the investigation of the physical and moral needs of the inhabitants, the establishment of an educational movement, both general and specific, a permanent basis for the amelioration of living conditions has been created. No personal considerations of gain, permanency in office, or political preferment interfere with the whole-hearted service rendered by all types of naval personnel.

There are four cases of leprosy under the cognizance of the municipality. Filariasis is held to be the underlying cause of many cases of irregular fever and indefinite minor ailments and is a subject demanding very close attention. Of 201 patients examined microscopically for filarial infection 6.9 per cent were found to harbor the *Filaria Bancrofti*. The death rate for pellagra is almost double that in the United States, and this disease also is one of serious import to the native population. Tuberculosis is responsible for 9 per cent of all deaths.

Syphilis here, as elsewhere, is a huge menace to the development, health, and happiness of the people. During one year 392 Wassermann tests were made at the naval hospital for the municipal health service, and in the same period 284 doses of salvarsan were given intravenously in addition to other treatment. The most crying

immediate need in this connection is general dissemination of information regarding the disease, since its existence as an entity, its mode of transmission, its damaging effects are utterly unknown to the great bulk of the population.

In the outpatient department of the Municipal Hospital the treatment of eye diseases is an important feature. In 1918 there were 3,811 treatments for this type of disease. There has been a slight reduction in diarrheal diseases in the past two years. Intestinal parasites are very generally present. In 532 patients examined, 41.73 per cent had trichuris trichiura, 8.08 per cent had ascari lumbricoides, 1.88 per cent had hookworm, 1.69 per cent had entameba histolytica. In 44.55 per cent no parasites were found.

It is interesting to note that no disease, injury, or death during 1918, in a population of 11,000 people, has been occasioned by homicidal or suicidal action. Again it is to be noted with satisfaction that since the ordinance requiring accurate reports of all births and deaths went into effect for the municipality of St. Thomas and St. John 100 per cent of births and deaths are properly reported, a record that is rarely equalled in registration areas in the United States.

Since March, 1919, Pharmacist K. Rydeen, United States Navy, has been in charge of the sanitary service at Santa Cruz, continuing the work previously carried on by Lieutenant B. V. McClenahan, Medical Corps, United States Navy, along the general lines followed in St. Thomas. The disposal of night soil and the protection of the water supply constitute the principal problems of sanitary administration involving as they do the question of typhoid fever, malaria, and dysentery. Inspection of cattle and butcher shops, regulating the sale of meat, and the handling and distribution of milk, disposal of street refuse and garbage, are still other duties assumed by the sanitation service.

*Navy yard, Washington, D. C.*—In January it was reported that the ventilation of the steel foundry was insufficient to conduct off the fumes arising from the Herould electric furnace and that bronchial irritations resulted. This has been corrected by the construction of an appropriate hood and flue to remove the noxious fumes.

In March a mild epidemic of furunculosis, chiefly upon the forearms, occurred among the lathe operators in the torpedo shop. The cause of these infections was found to be soiling of the forearms with cutting oil which had been spat into. Treatment of this oil with cresol and a warning circular in which the danger was pointed out and master mechanics and foremen were enjoined to exert sufficient vigilance to prevent a repetition of the offense were efficacious in checking the outbreak.

In April one electrocution and one serious electric burn directed attention to the fact that there existed in several places throughout the yard switchboards, exposed switchpoints, certain conduits, etc., where contact might be made with high tension currents. As a result the senior medical officer then on duty inspected all places where high tension currents were accessible and recommended "that, as a reasonable means of safety, rubber mats of at least one-half inch in thickness be supplied" to 16 places which he listed.

The material for these is on hand but has not been issued, for the reason that many of the places listed as dangerous are in new buildings where the contractors have been slow in completing the electric installations. The material is expensive and would become worn and deteriorated if placed in the designated locations before the rooms and the installations themselves were completed. This work is now nearly finished and when done, the mats installed, and certain other minor defects corrected in accordance with approved recommendations of the safety engineer, it is believed that ample protection will be afforded against electric currents and accidents will be unlikely.

In May and again in August, a study of grinding and eye injuries resulting therefrom was made by Captain E. G. Parker, Medical Corps, United States Navy (deceased), who expressed the opinion that article 392, Naval Instructions, was not being rigidly enforced. This opinion appears well founded for the period in question and apparently no great attention was paid to the matter until the latter part of the year. In October a safety engineer was again assigned to the yard and one of his earliest activities consisted in seeking enforcement of the provisions for eye protection. This subject is of vital importance inasmuch as the second largest class of accidents (18 per cent of all accidents) could be practically eliminated by such measures. Despite the reasonableness of the provision that goggles shall be worn while grinding or performing other operations that are hazardous to the eyes, much objection is raised by certain employees. In one shop where the master mechanic sought to enforce the provision and penalized two or three men for failing to protect themselves, he was waited upon by a delegation from a local labor union which insisted that the rights of workmen, as free citizens, were being infringed upon by such rules!

The helmet used at present in sand blasting at the foundry is open to considerable criticism. In the first place it is connected up to the compressed air line of the yard by means of a reducing valve which must be set by the operator, thus subjecting him to considerable changes of pressure; secondly, the expansion beyond the reducing valve so lowers the temperature of the air in the helmet as to make it most uncomfortable; thirdly, there is no outlet valve, the escape being through the thick wool felt material of which the joint between helmet and coat is formed. Of this third and obviously important defect the workmen do not complain for the reason that the joint between the helmet and coat not being a tight one, fine dust forces its way through and this is at present controlled by the downward directed current of air.

The medical department personnel of the yard consists of the senior medical officer, 4 junior medical officers, 2 dental surgeons, 1 pharmacist, 2 chief pharmacist's mates, and 10 hospital corpsmen of inferior ratings, in addition to 1 yeoman, first class, assigned to the dispensary.

During the year 25,624 cases have received attention from the medical officers (exclusive of members of the families of officers and enlisted men of which no complete record exists) and 3,127 cases have received dental treatment.

An analysis of the medical, surgical, and dental cases follows:

*Naval personnel.*

Average complement.....	987
Total number of patients.....	581
Total sick days.....	2, 179
Percentage of sick.....	0.6

Cases.	Illness.	Injuries.
Remaining from last year.....	25	1
Admissions.....	296	35
Readmissions.....	146	78
Total.....	467	114
Disposition:		
To duty.....	128	21
Change of diagnosis.....	2	1
Transferred to hospital.....	240	24
Invalided from the service.....	96	65
Died.....	1	3
Total.....	467	114

*Yard employees.*

Average number of employees.....	9, 522
Illnesses:	
Number examined, found ill, and sent home.....	968
Number examined, treated, and returned to work.....	2, 290
Number transferred to Public Health Service.....	79

Injuries:	
Head.....	427
Eyes.....	1, 094
Chest.....	46
Arms.....	326
Back.....	144
Abdomen.....	61
Legs.....	278
Feet.....	275
Hands.....	661
Toes.....	174
Fingers.....	2, 529
Herniae.....	23
Sprains.....	6
Fractures.....	44
Total.....	6, 078

Of the above injuries, 562 involved loss of time.

*Most frequent injuries, by months.*

Months.	Fingers.	Eyes.	Hands.	Months.	Fingers.	Eyes.	Hands.
January.....	217	101	91	August.....	213	108	36
February.....	240	96	49	September.....	236	93	43
March.....	242	107	63	October.....	214	116	58
April.....	226	80	32	November.....	192	94	26
May.....	217	67	50	December.....	171	59	44
June.....	191	103	52	Total.....	2, 529	1, 095	651
July.....	170	71	58				

Of the seven deaths, two occurred from causes not due to yard employment. One man was found dead in the hauling shop at 1 a. m. March 10. The case (probably cardiac) was turned over to



the coroner. The other case, a boiler maker, second class, was due to a cerebral hemorrhage. He was removed from the boiler shop at 7 p. m., July 18, and taken to Providence Hospital where he died.

Of the deaths credited to yard employment, two were easily avoidable if, indeed, not actually due to carelessness. On June 24, a helper, general, in the broadside mount shop attempted to throw off a belt with his foot; the foot was caught and he was whirled by the belt, sustaining compound fractures of the skull. The other case of this class occurred July 25, when a rigger working in the gunners' work shop removed a jack from beneath a stack of sheet metal leaning against a wall. The pile tipped over and crushed him against a machine, fracturing ribs and crushing his chest, internal hemorrhage probably being the immediate lethal factor.

Two deaths occurred through falls, one resulting in a fracture of the occiput and base of skull, the other in electrocution. The man in falling sought to save himself by grasping the points of the disconnecting switch on the foundry switchboard.

The remaining death was diagnosed "multiple injuries extreme." The entire body was crushed between the wheel beam and the craneway of a great crane in the coppersmith shop. There occurred lacerations of the scalp, the entire lower, anterior abdominal wall was torn away, and the pelvis and thighs were fractured. The man had been engaged in fitting a drip pan to a motor swung below the craneway and probably had crawled up on the craneway when struck.

*Further activities of the dispensary.*

Typhoid inoculations.....	3
Cowpox vaccinations.....	145
Candidates examined for civil service.....	2,013
Prescriptions filled.....	4,923
Venereal prophylaxis given.....	126
Professional visits outside of yard.....	848
Treatments, extractions, fillings, etc., done by the dental surgeons amounted to.....	3,127

*Navy mine depot, Yorktown, Va.*—At the beginning of the year the enlisted force consisted of 150 men quartered in tents or frame cottages widely separated from each other. The configuration of the terrain being favorable to mosquito breeding; the difficulty of transportation; the presence of hundreds of laborers in the construction camps, creating problems of garbage disposal, drainage, and water supply gave the medical officer a difficult and arduous task. However, conditions have steadily improved, and since the road to Newport News was completed and a motor ambulance assigned to the medical department the work has been carried on with proportionate increase of efficiency.

**MARINE STATIONS, BRIGADES, AND BARRACKS.**

*Legation guard, Managua, Nicaragua.*—This city of 40,000 inhabitants affords little scope for legitimate recreational activities for the members of the marine detachment on duty at the American legation. In general, the environment is unfavorable and deterioration is soon apparent in new arrivals replacing men whose time is up. Liquor is cheap and bad and every form of temptation abounds. The Campo de Marte covers 22 acres. In one corner is the marine

camp. The rest of the space is occupied by natives so that there is no ground readily available for outdoor sports and exercises. In a detail of 47 men received October 16, 1919, 22 were under 21 years of age. Ten per cent of the detail contracted venereal disease before the end of the quarter, and about the same number have been reported for disciplinary action, owing to misconduct directly or indirectly traceable to liquor. This is all largely the result of environment. When the men are on the rifle range, 1½ miles from the city, they employ their liberty in swimming, playing games, etc., and do not go to the city.

Though denied, there were persistent rumors during July and August that yellow fever was present in the city. In September two marines contracted yellow fever. In October there were 8 cases, in November 3, and in December 1 in the marine camp. There were no deaths. The early cases were seen and the diagnosis confirmed by members of the Rockefeller Foundation Yellow Fever Commission. On October 9 the members of commission who were then in Honduras were called on for assistance. They came at once. The conditions were fully explained to all members of the command, and those desiring to be vaccinated by the new Nougchi vaccine received the treatment—41 officers and men in all.

*Parris Island, S. C.*—There were 2,322 admissions to the sick list for disease, with 160 readmissions; 148 admissions for injuries, with 20 readmissions. The percentage of admissions and readmissions for all cases was 0.0594.

Until July all cases on the sick list not seriously ill and not requiring major surgical procedures were cared for in the sick bays of their respective units. Messes were maintained in the sick bays, and the patients and hospital corpsmen messed there. Since that date all cases requiring admission to the sick list with other than minor ailments have been transferred to the naval hospital. This change was made necessary by the shortage of hospital corpsmen incident to demobilization. It is planned to open up at least one of the sick bays, preferably that of the West Wing Training Station, at as early a date as possible and to retain patients therein, in order that the hospital corpsmen may be given bedside instruction and obtain practical experience in the care of the sick. Under present conditions all instruction of this nature is by lecture. Every effort is being made to fit hospital corpsmen for further and greater usefulness, and to this end practical work must be had. Under the provisions of Alnav message No. 257 every hospital corpsman was immediately transferred for discharge. From October 12 until October 20, when 10 hospital corpsmen were received, there were no hospital corpsmen attached to the barracks.

During the year 99 cases of malaria developed. Of this number 64 cases were recorded in September and October. During 1918 and 1919 there was practically no land cultivated on the island. This caused interference with the drainage and afforded protection for mosquitoes. In September the hospital corpsman who served for the past two years as sanitary inspector and in charge of the oiling squad, and who was therefore thoroughly familiar with all mosquito-breeding areas of the post, was discharged. On October 12 every hospital corpsman attached to the marine barracks was transferred for immediate discharge. This condition of affairs seriously handi-

capped the sanitary officer and was in part responsible for the increase during these months. Post regulations require oiling of all fire barrels at regular intervals. Bearing this in mind, the sanitation officer devoted his entire time to inspection of other likely breeding areas. The number of cases increasing, minute inspection of every fire barrel and fire bucket, etc., around the barracks was instituted, and it was found that oiling of fire barrels and buckets in the abandoned west wing training station, and certain unused barracks in the west wing extension had been overlooked and that these were responsible for the increase in cases. The majority of the cases, after discharge from the hospital, recurred. Orders were issued requiring all cases, after discharge from the sick list with malaria, to report to the sick bay twice daily for curative doses of quinine (10 grains morning and night). This also served to prevent their acting as carriers.

Owing to the great distances between the various organizations at this station, it has been necessary to establish dental offices accordingly, thereby making the dental offices more accessible to the men, as well as saving considerable time to those requiring dental treatment. There are at present three offices, namely: East wing dental office, naval prison dental office, main station dental office.

During the year 1919 the recruiting service carried on here has been confronted with the task of filling the vacancies left by the discharged duration-of-war men, reserve men, and regulars whose enlistments had expired during the war. Those charged with the training of recruits complained for a time of the new type of recruits until realizing the recruiting situation.

The post recruiting officer and medical examiner were placed between two opposing forces; the recruiting service contended that the accepted applicants were the best available; those charged with training the recruits, that the recruits could not stand the training required.

A survey of recruiting statistics here for the year shows that 5,654 accepted applicants were reexamined. Of this number 5,210 were accepted physically for enlistment and 444 rejected for physical defects. Many of the men rejected at this station should not have been accepted at the recruiting station. It is evident that the failure to detect defects is due to lack of routine physical examination, to the defect being noted but not given its proper importance, or to lack of experience or familiarity with the duties of a marine.

Pes planus is first in the causes for rejection, and ear disease is second on the list, numerically. It has been found that these two conditions have been the most troublesome of all, both in applicants and recruits in training. The question of whether a man has flat feet, in the absence of a history of discomfort, is largely a matter of personal opinion and judgment. Farmer boys, bakers, paper makers, sailors, etc., who are accustomed to working barefooted, have usually low arches, but are seldom troubled with symptoms. Ear diseases are almost sure to cause trouble after a brief exposure on the rifle range. It is believed that most of the failure to reject ear disease is because of failure to detect the condition.

Heart disease ranks third. Diseases of the heart have caused but little trouble on this station. Enlarged thyroids, mental diseases, and incontinence of urine are important. It is surprising

how many enlarged thyroids are found among accepted applicants. Many of them give symptoms of thyro-toxycosis and a family history of goiter. Several men with enlarged thyroid glands, exhibiting no other signs of goiter, after a very brief period of drilling and training, developed the tremor, tachycardia, and dyspnea of goiter. Mental disease is also a great source of trouble. Most of the cases rejected gave either a history of treatment in a sanitarium, a medical discharge from military service, or signs of mental inferiority. Incontinence of urine and bed wetting is the most annoying condition with which the medical officer of a training barracks has to contend. A man with a fair degree of intelligence, and a desire to get out of the service, can simulate this condition so closely that it is impossible, under any circumstances, to prove malingering. An individual whose clothing continuously gives off the odor of urine is, of course, repulsive and a nuisance to any organization.

*Marine aviation force, Port au Prince, Haiti.*—This camp was located at Bizoton, the old Haitian navy yard, not because the site was the most sanitary one to be chosen, but because it afforded the most satisfactory water front for hydroplanes. Bounding the station on the left was an old swamp where stagnant water stood the year round and tall grass grew in abundance. This afforded an excellent breeding place for mosquitoes, so the necessary measures were adopted immediately. Deep ditches, 3 feet wide and 2 feet deep, were dug the entire length of the field so as to empty in the bay, and intercepting channels were dug to connect the main drains. Crude oil was poured on the standing water and the grass cut away and burned. In the course of two or three weeks the bog had completely drained and the mosquito menace was practically at an end. Mosquitoes, however, kept breeding around the adjacent huts of the natives, so inspection was made of these homes and all stagnant water emptied and instructions left to keep the grounds in better sanitary condition.

Before these measures were enforced, malarial fever was gaining a foothold on the men of this organization and at one time over 12 per cent of the command was incapacitated for duty. Since the cleaning up of the swamps and native homes, we are not bothered to any great extent by malaria except as a recurrence of an old infection. Usually these cases are of short duration and they react quickly to quinine treatment. The men, of course, slept under mosquito nets from the first, but this did not prevent the spread of malaria, as the men would be bitten by mosquitoes before retiring and also while asleep if they were lying close to the net.

The sick bay is a newly constructed wooden building 45 feet long and 18 feet wide with a capacity of 8,100 cubic feet. It is located on the highest site of the station grounds under tall mango trees, which afford an abundance of shade. It is built in tropical style, i. e., with one-half of the walls screened, which affords plenty of light and ventilation. The building is painted khaki color outside and white inside. At each end there are two rooms 8 by 12 feet and the ward lies between. One front room is used for a dispensary and office and the other for an operating and dressing room. One rear room is used for medical and surgical stores and the laboratory and the other for a toilet, bath, and prophylaxis. The ward is provided

with 12 iron beds, 6 to each side, with a wide space in between. These beds are furnished with mosquito nets, mattresses, and linen by the medical department. The building is well lighted with electricity, one lamp being in each room and four in the ward. The medical department is well supplied with medicine, surgical instruments, and all necessary appliances used in treating the sick and injured. The sick bay is kept clean and tidy at all times and is always in a most sanitary condition.

*First Provisional Brigade, United States Marine Corps, Port au Prince, Haiti.*—On account of the very difficult transportation, it is nearly impossible for medical officers to reach many of the outposts with any degree of regularity, although an effort is made to inspect them, and make recommendations for sanitary improvements.

The greatest handicap the medical department of the brigade experienced is the lack in number and the inexperience of hospital corpsmen. At present there are 3 chief pharmacists' mates, no first class, no second class, 4 third class, and 29 hospital apprentices for the entire brigade. This number of rated men is not sufficient to properly attend to the office work and check up the medical department and quartermaster's property charged to the various organizations. There are therefore no experienced hospital corpsmen available for independent duty, although it is extremely desirable to have such hospital corpsmen with several of the detachments and outposts. There are no rated men available for duty in the field, and none for assignment with the Eighth Regiment. A full description of the field hospital was given in the sanitary report of 1918. There have been no extensive changes or improvements made during the past year. The status of the present hospital property is very unsatisfactory. The property is not rented from the owner, but is subleased from the Haitian-American Sugar Co. As the rent paid by the Government is greater than that paid to the owner by the first lessee there is a feeling of dissatisfaction on the part of the owner, and instead of having his assistance and support in making the improvements there is complete lack of cooperation.

According to the treaty, the occupation will continue for many years, and it is recommended that a pavilion type of hospital be built. This need not be expensive, and could be largely inclosed with screening and the sides and roof covered with tar paper if lumber be considered too expensive. It is confidently believed that the ultimate cost of such a hospital would be much less than the accumulated rent now being paid, and it would be more satisfactory.

Considerable difficulty has been experienced in getting fresh vegetables and a good quality of flour. The supply of food from native sources has been below normal on account of the activities of the bandits who either stole or destroyed many of the products in the country. Bandit activities also have a tendency to drive the country people into the outlying towns for protection, and thereby cause neglect of their plantations. There is also considerable difficulty experienced in obtaining cooks who are competent to properly prepare the food. Some of the troops in the field suffered from a lack of sufficient clothing. This was due to a lack of transportation facilities.

Malaria is by far the most prevalent disease among both officers and men. The returns on Form F do not tell the whole truth. The

malignant type of malaria continues to recur even though a thorough course of quinine has been given. Many of these patients are placed on the binnacle list for a couple of days, filled up with quinine, and returned to duty under treatment, without admissions having been made. Many of the detachments and outposts have neither medical officer nor hospital corpsman with them. These men are furnished with a supply of quinine. When they develop fever, they take the quinine, but no record is made of these cases.

Malignant malaria in Haiti is very protean in its symptomatology. In many cases fever associated with severe intestinal cramps are the first symptoms. Sometimes the pain and tenderness are most manifest in the appendix region, and this, with the vomiting, often led to a diagnosis of appendicitis. Sometimes the pain is localized in one of the kidneys often transmitted down the ureter and to the corresponding testicle. If, in these cases, there happens to be little or no fever, and red blood cells in the urine, it resembles very closely an attack of stone in the kidney or ureter. Indeed, in one case, a tentative diagnosis of acute appendicitis was made. When the pain finally localized, however, it was in the right kidney region, transmitted down the ureter and to the right testicle. The urine showed many red blood cells. The fever in this case was slight, and the attacks of pain came on at irregular intervals. Several blood smears had been negative for malarial parasites. After about two weeks of observation and symptomatic treatment, malarial parasites were found, the patient placed on quinine, and all of the symptoms cleared up promptly. The percentage of malignant malaria cases which show red blood cells or hemoglobin in the urine is much larger than most textbooks would lead one to believe.

Malaria is a preventable disease, but in Haiti the problem is beyond the capacity of the occupation. Every effort is made to keep all permanent camps free from mosquitoes and to have the men sleep under nets, but this is only partially successful. Officers and men in the field spend much of their time away from the permanent camp, often sleeping where night overtakes them. These men are absolutely without protection from mosquitoes.

During the entire summer of 1919 a great many cases diagnosed as "dysentery, unclassified," appeared both among the troops and civil population. It was widespread and was in no way confined to any locality. No definite cause for this disease has been found. The disease was really, more properly speaking, a diarrhea, associated with but little fever. Blood appeared in the stools only if the diarrhea continued for several days unchecked. There was not the prostration associated with amebic or bacillary dysenteries. In most cases the symptoms would promptly subside under a proper diet and treatment, but would recur shortly after being returned to duty. There were no deaths from this disease, and only a very small number were returned to the United States as a result of medical survey.

Venereal diseases have been kept under control fairly well when the conditions under which the troops are serving are considered. Venereal prophylaxis is carried out, but this procedure is greatly handicapped by the lack of trained hospital corpsmen to supervise the procedure.

Smallpox appeared in Cuba in July, 1919. On account of the close commercial connections between Haiti and Cuba and the fact that

Haitians are not generally vaccinated against smallpox, the entire personnel of the brigade were vaccinated. On account of the men being so scattered, there was great difficulty in reaching all of them. For this reason the results of the vaccination could not be obtained in a large number of cases. However, many of the medical officers reported that there was a surprisingly large number of "takes."

*Sick quarters, Marine Barracks, Quantico, Va.*—A number of improvements and additions have been effected in the equipment during the past year. A dark room for eye and ear examinations, a pus operating room, a clothing wash room, a bag room, etc., have been fitted up. The heating of the building has been much improved. Linen rooms and diet kitchens are now attached to each ward with a central diet kitchen in the building where the galley is located. The Red Cross convalescent house opened in February is now under the immediate authority of the senior medical officer.

The buildings, though put up in haste to meet urgent war demands, are in fairly good condition, and may be expected to continue serviceable for four years more. Those erected at a later date can be utilized for seven or eight years. The personnel consists of 4 medical officers, 1 dental officer, 1 pharmacist, 9 female nurses, and 32 hospital corpsmen, and 18 civilians (cooks, carpenter, fireman, plumber, mess attendants, etc.).

The surgical operations during the year numbered 397. The X-ray laboratory made 1,344 exposures. Patients admitted 228, readmitted 1,643, discharged to duty 1,220, invalided from the service 196, died 9, otherwise disposed of 446.

*Marine barracks, Christiansted, St. Croix, Virgin Islands.*—Four different companies have been stationed at the marine barracks at different times and four outposts have been maintained. The health of the command has been excellent and sanitary conditions good considering the surroundings. The new building was finished in April. It is located on high ground and well screened and ventilated. The men are required to sleep under mosquito nets. Water is from a special cistern that is constantly inspected and periodically changed. Water used for drinking is filtered. The food is of good quality and well prepared. A dispensary is near at hand that could in an emergency house 30 patients. At Frederiksted the dispensary is in the barrack building itself. Serious cases are sent to the dispensary at Christiansted, except members of the naval band (natives) who go to the municipal hospital at Frederiksted.

*Marine barracks, St. Thomas, Virgin Islands.*—The barracks consist of one main building, several mess halls, storerooms, bathhouse, bakery, tents, and toilet. The main building is very old. The shell is stone and very well constructed, but the inside is in very poor condition. The walls and floors are worm eaten and offer breeding places for bedbugs, roaches and other vermin. It is impossible to fumigate so as to rid the place of these pests. At present only 37 men berth in a building, the others occupy tents, two men to a tent. Each man sleeps under a mosquito net. The tents are in the open, some distance from the buildings. Each tent has a wooden floor and is covered with a fly. A reading and writing room is provided. One of the mess halls is now used as a pool room. Water is obtained from the Danish West Indies Co. The source is a spring. This water is stored in concrete mosquito-proof cisterns. Other cisterns store rain water drained from the various buildings. Drinking water is

obtained from scuttle butts in various places which are filled and iced daily.

The medical department occupies four rooms on the lower floor of the main building, an office, dispensary, sick bay, and storeroom. The naval hospital is very close and all bed patients are immediately transferred to it. It would be very desirable to have at least one or more additional hospital corpsmen. Under the present complement the dispensary is closed when the hospital corpsman goes on liberty. The pharmacist's mate attached at present is very capable and efficient, and is well qualified to be advanced in rating. In several instances he has taken care of emergencies in a manner worthy of mention.

It is recommended that the main building be rebuilt inside according to a plan on file; also that a new bathhouse be constructed with running water, showers, and standard wash bowls.

#### NECROLOGY.

I have to record with sincere sorrow the loss to the service of the following-named medical officers who have died since my last report, or whose names were not contained in the previous list. Some of these medical officers had served their country with faithfulness and distinction for many years, while others were just beginning careers of great promise.

Captain William S. Dixon, Medical Corps, United States Navy (retired), August 11, 1919.

Rear Admiral James M. Flint, Medical Corps, United States Navy (retired), November 21, 1919.

Captain Lucian Guy Heneberger, Medical Corps, United States Navy (retired), August 3, 1919.

Lieutenant (j. g.) Davis Herren, Medical Corps, United States Naval Reserve Force, July 25, 1919.

Lieutenant John Milton King, Dental Corps, United States Naval Reserve Force, June 1, 1919.

Captain Edward Grahame Parker, Medical Corps, United States Navy, October 4, 1919.

Lieutenant (j. g.) Ralph Edwin Shrom, Medical Corps, United States Naval Reserve Force, January 26, 1919.

Lieutenant (j. g.) Herbert L. Strong, Medical Corps, United States Naval Reserve Force, October 21, 1919.

Lieutenant Edward Glenn Archibald, Medical Corps, United States Navy, March 25, 1920.

Lieutenant Abraham Feldman, Medical Corps, United States Naval Reserve Force, January 20, 1920.

Lieutenant George Victor Genzmer, Medical Corps, United States Naval Reserve Force, January 30, 1920.

Rear Admiral Adolph August Hoehling, Medical Corps, United Navy (retired), April 25, 1920.

Commander John Aloysius Lee, Medical Corps, United States Naval Reserve Force, April 4, 1920.

Passed Assistant Surgeon Egbert Gray MacKenzie, Medical Corps. United States Navy (retired), February 2, 1920.

Lieutenant Edward R. McColl, Medical Corps, United States Navy, February 1, 1920.

Commander William Martin, Medical Corps, United States Navy (retired), April 1, 1920.



Lieutenant Joseph Charles Munster, Dental Corps, United States Naval Reserve Force, March 6, 1920.

Captain Oliver Dwight Norton, Medical Corps, United States Navy (retired), March 20, 1920.

Captain John Walton Ross, Medical Corps, United States Navy (retired), February 8, 1920.

Lieutenant Commander Arthur E. Youngie, Medical Corps, United States Navy, March 4, 1920.

#### HONORS AND DISTINCTIONS.

The following honors have been conferred on members of the medical corps:

Braisted, W. C., Rear Admiral, Medical Corps, United States Navy, LL. D., Jefferson Medical College, F. R. C. S. (Edinburgh).

Grayson, C. T., Rear Admiral, Medical Corps, United States Navy, M. D., Medical College of Virginia, Richmond, Va.

Stitt, E. R., Rear Admiral, Medical Corps, United States Navy, D. Sc., Jefferson Medical College.

#### HEALTH OF THE NAVY.

##### EPIDEMIOLOGICAL AND STATISTICAL DATA.

Health conditions in general throughout the service were good during the year. Numerous cases of influenza were reported following the great pandemic which occurred during the autumn of 1918. The incidence of other communicable diseases was not unduly great in 1919, when it is considered that recruits were being taken into the service as rapidly as possible to replace men who had enlisted for the duration of the war.

From the epidemiological standpoint the medical department was confronted with a unique situation in that the year represented a period of continuous expansion involving the usual increase in sickness rates which accompanies the induction of large numbers of recruits into service, while at the same time, as a result of demobilization, the personnel of the Navy steadily diminished. Thus the effect on sickness rates caused by the substitution of untrained and unseasoned men for those who served during the war was accentuated by steadily falling complement figures from week to week, and it would have been too much to expect low morbidity rates or a death rate as low as equivalent rates for years immediately preceding the World War.

Communicable diseases of the respiratory type, especially those which are common to childhood and to which recruits are usually susceptible, were somewhat more prevalent than they should be in an average peace-time year, but somewhat less prevalent than during 1918.

##### MORBIDITY RATES OF THE NAVY.

The admission rate for all causes, entire Navy, was 676.02 per thousand as compared with 776.27 per thousand for the calendar year 1918, and a mean rate of 603.76 for the five-year period immediately preceding the war.

The admission rate for disease only was 620.69, as compared with 705.88 for the year 1918, and a mean rate of 463.80 for the five-year period immediately preceding the war.

For communicable diseases exclusive of influenza, tonsillitis, minor infections of the upper respiratory tract, and the venereal diseases, the admission rate was 61.73, as compared with 91.65 for 1918.

For the force afloat the admission rate for all causes was 536.18 as compared with 769.21 for shore stations in the United States.

*Morbidity rates for the forces afloat, calendar year 1919.*

ALL CAUSES—DISEASES AND INJURIES.

	Minimum rate.	Median rate.	Mean rate. <sup>1</sup>	Maximum rate.
All ships.....		513.94	536.18	2,138.13
Battleships and cruisers.....	312.28	649.91	646.31	1,589.40
Destroyer force.....		399.96	440.26	1,165.86
Submarine force.....	258.61	439.31	484.14	918.26
Gunboats and small cruisers.....		580.45	706.81	2,123.13
Miscellaneous vessels.....	35.92	530.97	558.09	1,230.07

DISEASES ONLY.

All ships.....		439.05	457.49	2,128.93
Battleships and cruisers.....	288.07	627.58	571.12	144.07
Destroyer force.....		357.99	396.55	1,097.90
Submarine force.....	246.03	385.88	422.62	742.70
Gunboats and small cruisers.....	200.00	506.38	649.88	2,126.93
Miscellaneous vessels.....	32.30	385.00	463.34	1,130.43

ACCIDENTS AND INJURIES.

All ships.....		50.10	62.05	863.61
Battleships and cruisers.....		62.78	67.26	198.45
Destroyer force.....	133.85	154.74	45.88	712.47
Submarine force.....	7.93	41.95	70.79	176.12
Gunboats and small cruisers.....		45.82	51.19	155.00
Miscellaneous vessels.....		59.21	87.62	893.61

DROWNING.

All ships.....			1.18	29.28
Battleships and cruisers.....			.46	3.94
Destroyer force.....			1.49	29.28
Submarine force.....			.80	2.64
Gunboats and small cruisers.....			2.88	20.83
Miscellaneous vessels.....			.85	18.87

COMMUNICABLE DISEASES.<sup>2</sup>

All ships.....		9.26	24.69	1,404.32
Battleships and cruisers.....		20.45	28.33	83.33
Destroyer force.....			10.56	180.32
Submarine force.....	2.65	11.09	10.37	15.71
Gunboats and small cruisers.....		18.80	97.41	1,404.32
Miscellaneous vessels.....		14.93	30.56	255.95

INFLUENZA.

All ships.....		18.51	33.20	316.93
Battleships and cruisers.....		28.61	51.45	316.93
Destroyer force.....			27.67	212.77
Submarine force.....	18.33	46.80	49.82	101.85
Gunboats and small cruisers.....		41.06	54.38	177.77
Miscellaneous vessels.....		23.93	46.06	200.00

<sup>1</sup> Average of the rates.

<sup>2</sup> Cerebro-spinal fever (meningococcus); cerebro-spinal meningitis; chickenpox; diphtheria; influenza; malaria; measles; mumps; pneumonia, primary broncho-; pneumonia, lobar; scarlet fever; smallpox; tuberculosis, all forms.

U. S. NAVY.

ANNUAL DEATH RATES PER 1,000, BY YEARS, 1850-1919.

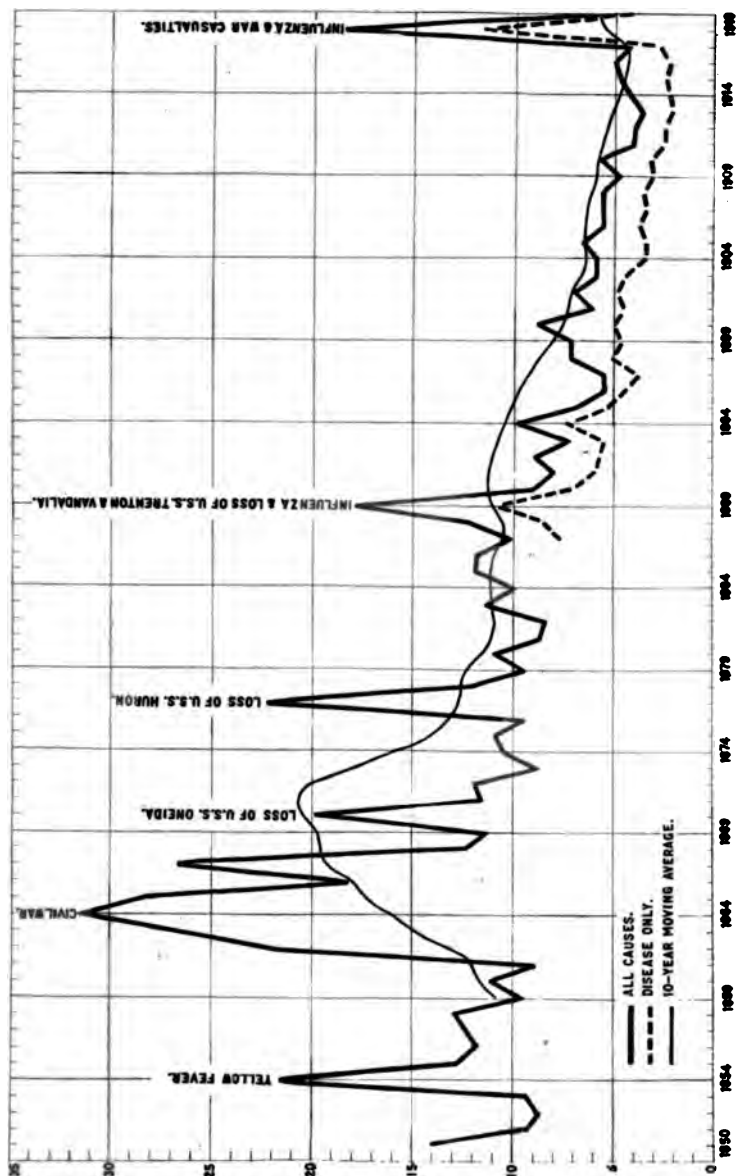


CHART No. 2.

U. S. NAVY.

ANNUAL DEATH RATES PER 1,000 DUE TO VARIOUS IMPORTANT CAUSES IN COMPARISON WITH THE MEAN  
ANNUAL DEATH RATES FOR THE YEAR PERIOD 1912 TO 1916 INCLUSIVE.

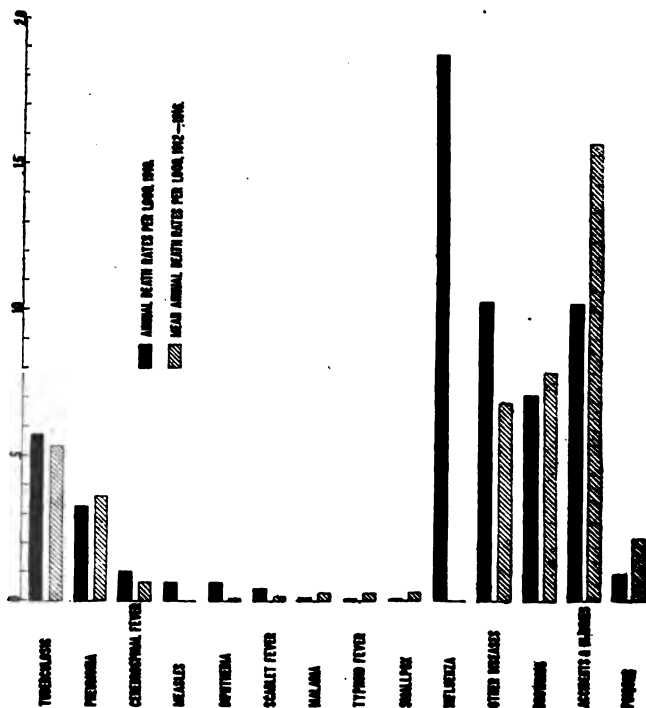
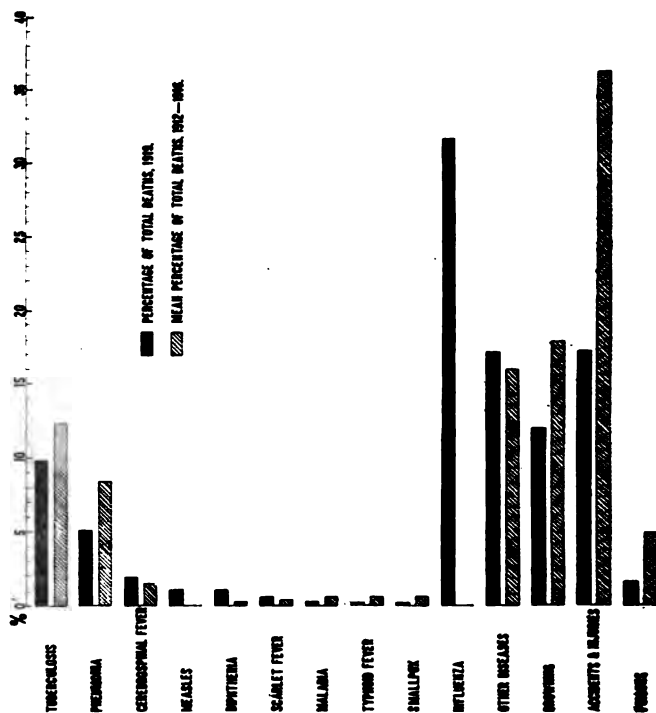


CHART No. 3.

U. S. NAVY.

PERCENTAGES OF TOTAL DEATHS DUE TO VARIOUS IMPORTANT CAUSES IN COMPARISON WITH THE MEAN  
SIMILAR PERCENTAGES FOR THE FIVE YEAR PERIOD 1912 TO 1916 INCLUSIVE.



## THE DEATH RATE OF THE NAVY.

The crude death rate of the Navy (all causes) was 5.90, as compared with 18.47 for the calendar year 1918, and a mean death rate of 4.29 for the five-year period immediately preceding the war. The death rate from disease only was 4.07, as compared with the mean rate of 2.36, 1912 to 1916, inclusive. Chart No. 1 shows death rates from all causes and diseases only, from 1850.

As usual, communicable diseases were responsible for a high percentage of all deaths. The ratios are shown by charts Nos. 2 and 3.

During the year 1919 there were 1,762 deaths. Of these, 1,217 were due to disease, 529 to accidents and injuries, and 16 to casualties in action.

If pneumonia in its various forms could have been eliminated as a cause of death, the death rate of the Navy for disease would have been only 1.84. Of the pneumonia deaths 83 per cent were caused by influenzal pneumonia, and of these 88 per cent occurred in the early part of the year during the period immediately following the pandemic of 1918.

## INFLUENZA.

After the passing of secondary epidemics during January, February, and March, and a period of prevalence greater than usual until May, influenza did not again occur in epidemic form during 1919. Throughout the summer and fall the incidence of this disease was lower than in ordinary times.

In accordance with the epidemiological history of influenza, epidemics were expected to occur during the spring of 1920 or before. An epidemic which proved to be severe began at the United States naval training station, Great Lakes, Ill., during the week ended January 17, 1920. The incidence curve was very similar to epidemic curves for several stations in the autumn of 1918. The peak was reached on the third day with the admission of 182 new cases during the 24 hours. Although the peak came early, the decline was less rapid, and there were four secondary peaks. The outbreak may be said to have terminated by the twenty-fourth day. The epidemic was much less severe than that which occurred at Great Lakes in 1918. A great many mild cases were included in the incidence, probably a higher percentage of all influenza cases were recorded than during the 1918 epidemic, and doubtless some were not true cases. Nevertheless, pneumonia complicated in 151, or 10.7 per cent, of the 1,415 reported cases of influenza. The epidemic rates were as follows:

Average complement.....	6,416
Epidemic attack rate, per cent.....	22.05
Epidemic death rate, per 1,000.....	6.85
Indicated case fatality rate, per cent.....	3.10

Comparatively mild epidemics of influenza occurred during February and March at shore stations in the United States, as follows:

	Cases.	Deaths.
Submarine base, New London, Conn.....	50	1
Marine barracks, Quantico, Va.....	85	4
Marine barracks, Parris Island, S. C.....	156	3
Navy yard, Portsmouth, N. H.....	39	0
Training station, Newport, R. I.....	262	2
Receiving ship, New York, N. Y.....	69	0
Navy yard, including receiving ship, Philadelphia, Pa.....	709	7
Training station, Hampton Roads, Va.....	100	0
Navy yard, Charleston, S. C.....	69	0
Navy yard, Mare Island, Calif.....	271	9
Training station, San Francisco, Calif.....	127	17

Very few cases occurred at other stations.

An epidemic, comprising 167 cases and lasting five days, occurred on board the U. S. S. *New York* at Puget Sound, Wash. One death occurred later. An epidemic with 67 cases and 3 deaths occurred on board the U. S. S. *South Dakota* at Vladivostok, Siberia, while influenza was epidemic in Japan and Siberia. During the period January 1 to May 31, 1920, 8,836 cases of influenza and 270 deaths from influenza and influenzal pneumonia occurred in the Navy. The attack rate, death rate, and case fatality rate from influenza, including influenzal pneumonia, as compared with similar rates for the period August 31 to December 31, 1918, were as follows:

	Epidemic period 1920.	Epidemic period 1918.
Mean strength of the Navy.....	132,316	612,833
Attack rate, per cent.....	6.62	15.06
Death rate from influenza, per 1,000.....	2.04	6.75
Indicated case fatality rate for influenza, per cent.....	3.05	4.46

Figures for forces ashore in the United States and forces afloat separately for the epidemic period of 1920 in comparison with the epidemic period of 1918:

	1920			1918		
	Comple- ment.	Admis- sions.	Admis- sion rate per 1,000.	Comple- ment.	Admis- sions.	Admis- sion rate per 1,000.
Forces ashore in the United States.....	57,743	5,396	93.44	250,457	65,019	259.60
Forces afloat.....	75,600	3,440	45.50	362,376	27,389	75.59
Total.....	133,343	8,836	66.26	612,833	92,408	150.79

The incidence of influenza among forces afloat was again, as in 1918, lower than among the forces ashore in the United States.

#### PNEUMONIA.

Of the 1,217 deaths due to disease during the calendar year 1919 673 were due to pneumonia as follows:

Lobar pneumonia.....	78
Bronchial pneumonia.....	19
Influenzal pneumonia.....	556
Measles pneumonia.....	18

# CHART No. 4.

U. S. NAVY: ANNUAL ADMISSION RATES PER 1,000, BY MONTHS, INFLUENZA, 1918, 1919,  
AND 1920 TO AUGUST 1.

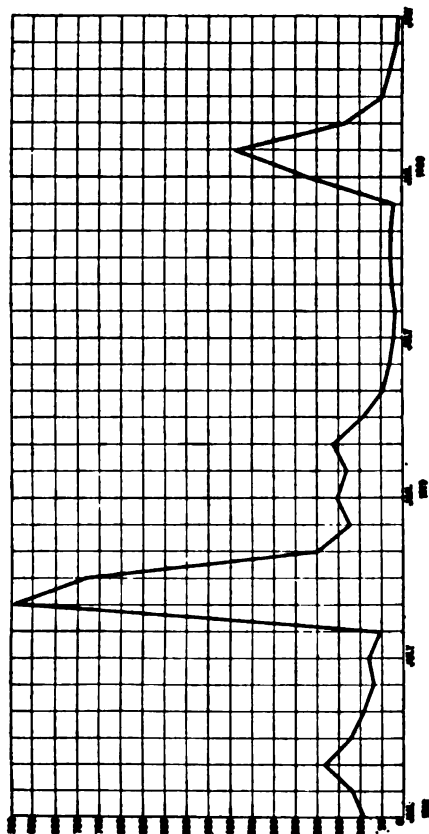
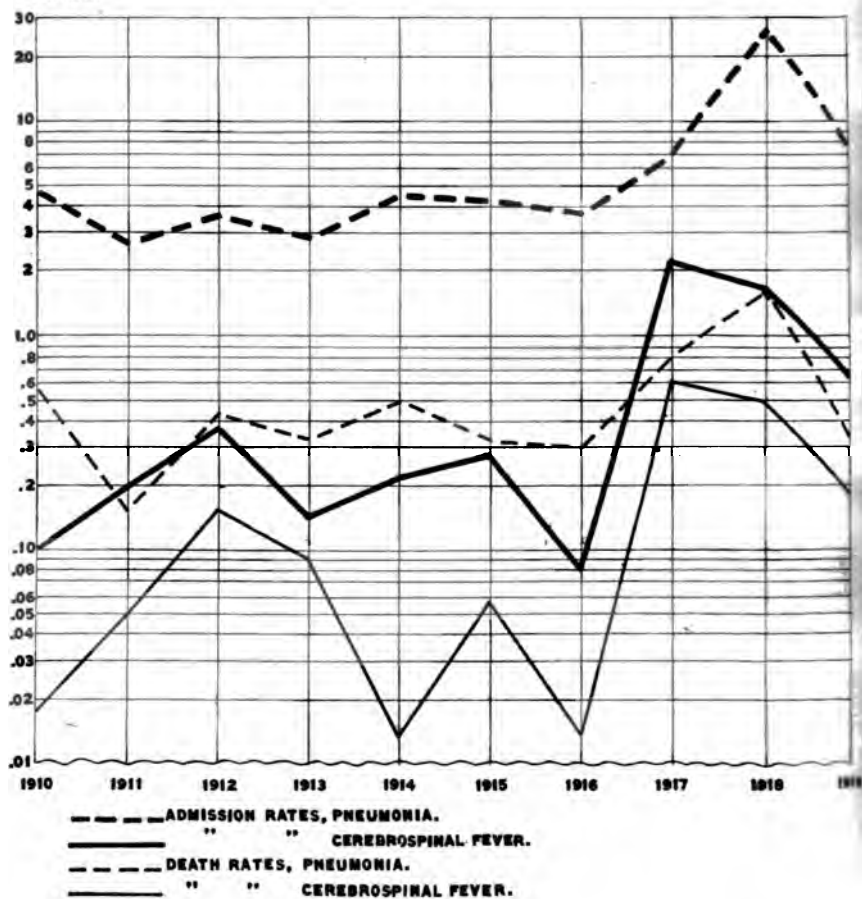


CHART No. 5.

U. S. NAVY: ANNUAL ADMISSION RATES AND DEATH RATES PER 1,000 BY YEARS, PNEUMONIA (ALL FORMS) AND CEREBRO-SPINAL FEVER, 1910-1919. LOGARITHMIC SCALE.





Deaths from pneumonia complicating measles are charged against measles as the primary cause of death.

If pneumonia in its various forms could have been eliminated as a cause of death the death rate of the Navy from disease would have been 1.84 per thousand instead of 4.07. Inasmuch as 83 per cent of the pneumonia deaths were due to influenza in epidemic form, this rate compares favorably with rates of previous years.

As usual the incidence of primary lobar pneumonia was greatest during the months of January, February, March, and April, the prevalence of this disease being correlated with cold, raw, wet, and windy weather. However, lobar pneumonia in the Navy is not limited to any particular season of the year, and the admission rate for no week fell below 1 per thousand per annum, even during July, August, and September. The admission rate varied from 2 to 5 per 1,000 per annum during the greater part of the year.

The death rate from pneumonia, (lobar and primary bronchial pneumonia) for the force ashore was 78.59 per 100,000, while the rate for the force afloat was only 10.39 per 100,000. The admission rates were 17.51 and 2.68 per 1,000, respectively.

There were in all 97 deaths from lobar and primary bronchial pneumonia in the entire Navy during the calendar year 1919, making a death rate of 32 per 100,000.

The death rate for the registration area of the United States, pneumonia (all forms), for the year 1917 was 149.8 per 100,000 of population. In 1918 many erroneous diagnoses undoubtedly resulted on account of the pandemic of influenza and it is not profitable to attempt to differentiate between influenzal pneumonia and other forms of pneumonia. The death rate for the registration area that year for influenza and pneumonia (all forms) was 583.2 per 100,000 as compared with the similar combined rate of 167 per 100,000 in 1917, which was the highest rate for any year since 1910 until 1918. Eighty per cent of the deaths from these causes occurred in the last four months of the year. The figures for 1919 are not yet available.

For the entire Navy, calendar year 1918, the incidence rate for pneumonia (lobar and primary bronchial pneumonia) was 24.97 per 1,000. The death rate was 153 per 100,000; for influenza and pneumonia (all forms) combined, 978 per 100,000.

With few exceptions the cases which occurred among the forces afloat were scattered throughout the year, and most of these occurred in battleships and transports. It was exceptional for more than one or two cases to occur in any one battleship or other type of naval vessel in the same month.

#### MEASLES.

Because of the continuous induction of large numbers of recruits into service, the incidence of measles was greater than would ordinarily be expected in a peace-time year under present conditions. Cases of measles were reported for every week of the year except the week ended July 12.

During the calendar year 1919 there were admitted to sick list 1,078 cases of measles. Of these 18 died.

The admission rate was 3.61 per 1,000, the death rate 6.02 per 100,000 and the case fatality rate 1.67 per cent. Deaths resulting from complications of measles are charged against measles.

The prevalence of measles was greater among forces ashore than among forces afloat, except during the autumn when the incidence was greater among the forces afloat. Groups of cases occurred on board the *New York*, *Texas*, and *Wyoming*. A few cases also occurred on board the *New Mexico*, *Arkansas*, and the *Birmingham*. Comparatively few cases occurred at shore stations along the Atlantic coast of the United States, but cases continued to be reported from time to time from stations on the west coast in the vicinity of San Francisco.

The death rate from measles, entire Navy, in 1918 was 22 per 100,000. Previous to 1918 deaths resulting from complications of measles were not invariably charged against measles.

Admission rates from measles for the five-year period, 1914 to 1918, inclusive, were as follows:

	Average complement.	Admissions.	Admission rate per 1,000.
1914.....	67, 141	424	6.32
1915.....	68, 075	308	4.52
1916.....	69, 294	523	7.55
1917.....	245, 580	7, 581	30.79
1918.....	503, 792	6, 915	13.73
1919.....	298, 774	1, 078	3.61

#### CEREBRO-SPINAL FEVER.

During the calendar year 1919 there were admitted to sick list, 105 cases diagnosed as cerebro-spinal fever. There were 31 deaths. The admission rate was 0.35 per 1,000, the death rate 10.38 per 100,000, and the case fatality rate 29.52 per cent.

For all forms of cerebro-spinal meningitis, including cerebro-spinal fever, 187 cases were reported. Occasionally cases of cerebro-spinal fever are reported under the diagnostic title cerebro-spinal meningitis, and it is impossible to correct all such returns on morbidity report blanks. With regard to fatal cases, it is possible in practically all instances to determine from the death certificate whether or not the case was one of meningococcus meningitis or cerebro-spinal meningitis caused by some other micro-organism. If it had been possible to list all cases of cerebro-spinal fever under the correct diagnosis the indicated admission rate would be higher and therefore the true case fatality rate is undoubtedly lower than the indicated rate.

Previous to 1917 the diagnostic terms, cerebro-spinal fever and cerebro-spinal meningitis, were used indiscriminately by many medical officers. Therefore it is possible only to present figures for cerebro-spinal fever relating to the last three years. These are as follows:

	Complement.	Admission rate per 1,000.	Death rate per 100,000.	Indicated case fatality rate per 100.
1917.....	245, 580	2.06	61.40	29.73
1918.....	503, 792	1.73	43.00	30.04
1919.....	298, 774	.35	10.38	29.52

*Admission rates per 1,000, death rates per 100,000, and indicated case fatality rates per 100, for cerebro-spinal meningitis, including cerebro-spinal fever, by years, 1910 to 1919, entire Navy.*

Year.	Average complement, Navy and Marine Corps.	Admissions.	Deaths.	Admission rate per 1,000.	Death rate per 100.0 0.	Indicated case fatality rate per 100.
1910.....	58,601	6	1	0.10	1.70	16.67
1911.....	61,399	12	3	.20	4.88	25.00
1912.....	61,897	22	9	.36	14.54	40.91
1913.....	65,926	9	6	.14	9.10	66.67
1914.....	67,141	14	1	.208	1.48	7.14
1915.....	68,075	19	4	.279	5.87	21.05
1916.....	69,294	6	3	.084	1.41	50.00
1917.....	245,580	373	112	2.06	61.40	29.72
1918.....	503,792	587	205	1.63	49.00	30.04
1919.....	238,774	187	51	.63	17.07	27.27

Cerebro-spinal fever has been reported during the year from shore stations in the United States and from ships as follows:

Naval training stations:		Naval hospitals—Continued.	
Great Lakes, Ill.....	10	Great Lakes, Ill.....	11
San Francisco, Calif.....	2	Norfolk, Va.....	7
Hampton Roads, Va.....	2	Puget Sound, Wash.....	1
Newport, R. I.....	13	Paris Island, S. C.....	3
Receiving ship, New York, N. Y.....	2	Hampton Roads, Va.....	4
Marine barracks:		Pelham Bay Park, N. Y.....	1
Quantico, Va.....	3	San Diego, Calif.....	1
Paris Island, S. C.....	1	Washington, D. C.....	1
Base 19, L'Orient, France.....	1	U. S. S. <i>New Mexico</i> .....	1
Fifteenth naval district, Panama Canal Zone.....	1	U. S. S. <i>New York</i> .....	1
Thirteenth Regiment of Marines, Bordeaux, France.....	1	U. S. S. <i>Huron</i> .....	5
Naval dispensary, Washington, D. C.....	1	U. S. S. <i>Siboney</i> .....	1
Navy yard, Norfolk, Va.....	1	U. S. S. <i>Rambler</i> .....	1
Office of commander, cruiser force.....	1	U. S. S. <i>Eider</i> .....	1
Navy mine depot, Yorktown, Va.....	2	U. S. S. <i>Maine</i> .....	1
Marine expeditionary forces, France.....	2	U. S. S. <i>Zealandia</i> .....	1
Recruiting stations.....	2	U. S. S. <i>Panther</i> .....	1
Naval hospitals:		U. S. S. <i>Glen White</i> .....	1
Charleston, S. C.....	2	U. S. S. <i>Gridley</i> .....	1
Newport, R. I.....	7	U. S. S. <i>Bridge</i> .....	1
New York, N. Y.....	3	U. S. S. <i>Adroit</i> .....	1
		U. S. S. <i>Balch</i> .....	1
		U. S. S. <i>South Dakota</i> .....	1

With regard to season of the year, cases were reported from the entire Navy as follows:

January.....	29	July.....	7
February.....	19	August.....	3
March.....	11	September.....	2
April.....	10	October.....	1
May.....	11	November.....	2
June.....	8	December.....	2

#### DIPHTHERIA.

During the calendar year 1919, 831 cases of diphtheria were reported for the entire Navy, with 18 deaths, making an admission rate of 2.78 per 1,000, a death rate of 6 per 100,000, and a case fatality rate of 2.17 per cent.

For the five-year period before the World War, 1912 to 1916, inclusive, the mean rates are: Admission rate, 0.83 per 1,000, death

rate, 0.9 per 100,000, and mean indicated case fatality rate, 1.09 per cent.

*Admission rates per 1,000, death rates per 100,000, and indicated case fatality rates per 100, by years, 1910 to 1919, diphtheria, entire Navy.*

Year.	Average complement, Navy and Marine Corps.	Admissions.	Deaths.	Admission rate per 1,000.	Death rate per 100,000.	Indicated case fatality rate per 100.
1910.....	58,661	109	.....	1.86	.....	.....
1911.....	61,309	36	3	.59	4.89	8.33
1912.....	61,897	58	.....	.94	.....	.....
1913.....	65,926	73	.....	1.11	.....	.....
1914.....	67,141	59	1	.88	1.40	1.69
1915.....	68,075	38	1	.56	1.47	2.63
1916.....	69,204	48	1	.69	1.44	2.08
1917.....	245,580	209	3	.85	1.22	1.44
1918.....	502,792	1,818	48	3.61	9.53	2.64
1919.....	298,774	831	18	2.78	6.02	2.18

Diphtheria was reported from 29 shore stations in the United States and from 53 ships. Nine cases occurred on board the U. S. S. *New Jersey* in the third week of April, and one case the following week. No other case occurred during the year. Seven cases occurred on board the U. S. S. *Wheeling* during the first week of March. Four cases occurred on board the U. S. S. *Wyoming* in the first week of August. In the other ships sporadic cases only occurred; for the most part singly.

Diphtheria did not occur in epidemic form at any shore station. Sporadic cases occurred from time to time at naval training stations.

From the entire service, cases of diphtheria were reported every week in the year except the week ended September 6. The incidence was greater during the winter and spring than during the fall, and was lowest during July, August, and September. No case was reported from shore stations in the United States for the weeks ended September 6, September 20, October 11, October 18, October 25, November 1, and November 8.

*Annual admission rates per 1,000, by months, diphtheria, entire Navy, calendar year 1919.*

January.....	2.54	July.....	1.52
February.....	3.06	August.....	1.60
March.....	3.22	September.....	.96
April.....	3.72	October.....	2.04
May.....	3.16	November.....	2.78
June.....	2.26	December.....	2.45

#### SCARLET FEVER.

For the entire Navy during the calendar year 1919 there were reported 722 cases of scarlet fever with 11 deaths, making an admission rate of 2.42 per 1,000 per annum; death rate, 3.68 per 100,000; and a case fatality rate of 1.5 per cent. For the five-year period before the World War, 1912 to 1916, inclusive, the mean rates are: Admission rate, 0.68 per 1,000; death rate, 1.20 per 100,000; and case fatality rate, 1.77 per cent.

Scarlet fever was reported from 27 shore stations and from 30 ships during the year. Twenty-five cases occurred on board the

CHART No. 6.

U. S. NAVY: ADMISSION RATES AND DEATH RATES PER 1,000 FOR SCARLET FEVER AND DIPHTHERIA, AND ADMISSION RATES FOR MUMPS AND MEASLES, BY YEARS, 1910 TO 1919. LOGARITHMIC SCALE.

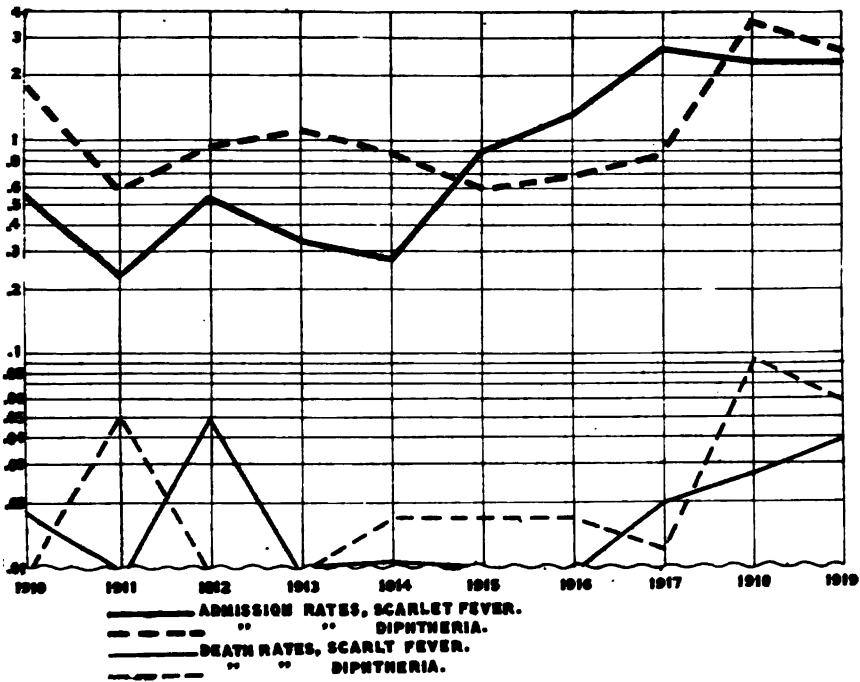


CHART No. 7.

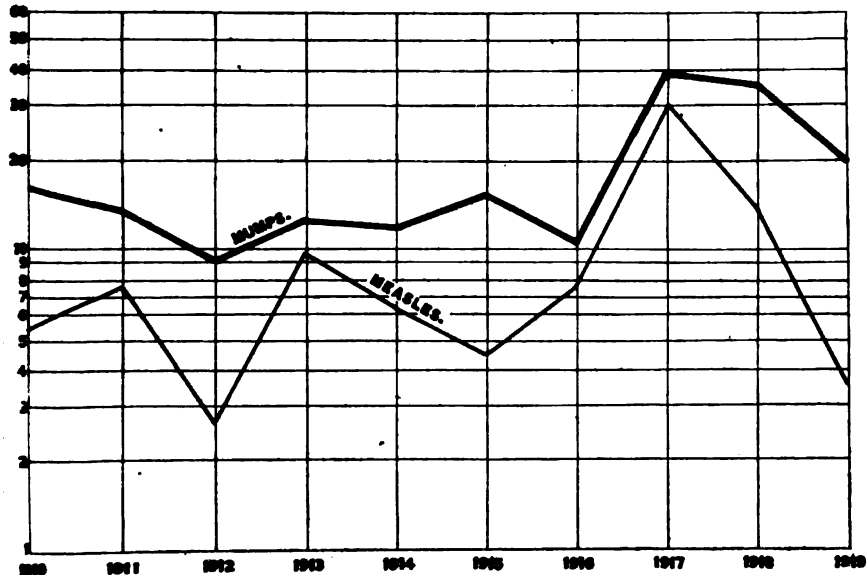
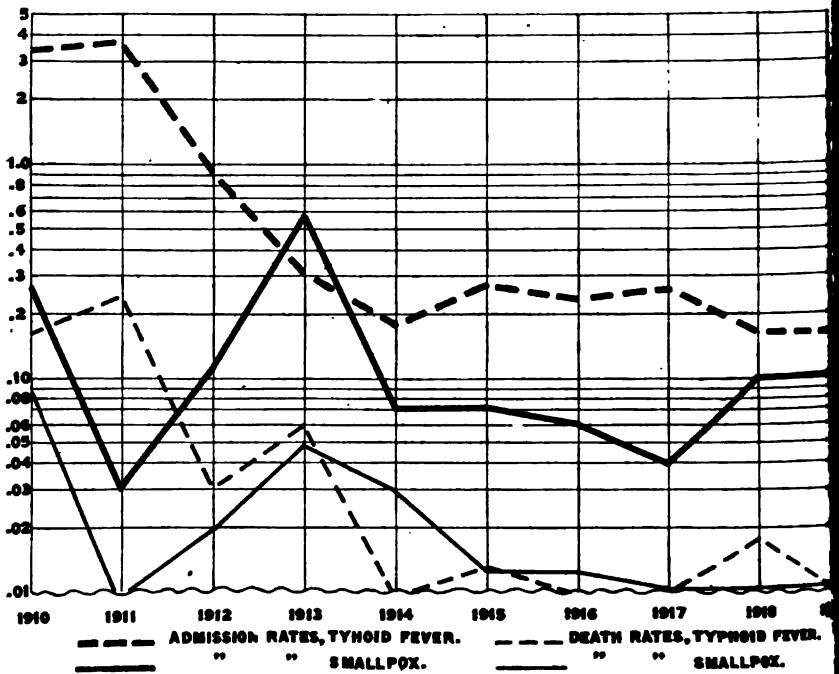


CHART No. 8.

U. S. NAVY: ADMISSION RATES AND DEATH RATES PER 1,000 BY YEARS, TYPHOID FEVER AND SMALLPOX, 1910-1919. LOGARITHMIC SCALE.



U. S. S. *Arkansas*—20 during August, September, and October, and the remainder scattered singly throughout the rest of the year. Five cases occurred on board the U. S. S. *Texas* during November and December. Only sporadic cases occurred in other ships.

Scarlet fever was more prevalent at naval stations on the Pacific coast than in the eastern part of the United States. The majority of cases occurring on board ship were reported from vessels of the Pacific Fleet.

The greatest number of cases occurring at any one station were reported from the United States Naval Training Station, Great Lakes, Ill.—131 during the year. The month of greatest prevalence was May—49 cases. The disease was not epidemic at any time, cases occurring from week to week in small numbers throughout the year, except during the months of August and September, when no case appeared.

Few cases were reported from other stations except the United States Naval Training Station, San Francisco, Calif., and the United States Naval Training Camp, Mare Island, Calif., where 36 and 19 cases, respectively, occurred. The disease appeared merely in sporadic form at these stations, and was associated with the somewhat unusual prevalence of scarlet fever in California and various cities in other parts of the country.

With regard to the Navy as a whole, it is worth noting that cases of scarlet fever were reported for every week in the year, although incidence rates were below 1 per 1,000 per annum during January and February, and again during July, August, and September.

Annual admission rates per 1,000, entire Navy, by months, were as follows:

January.....	0.65	July.....	1.67
February.....	.76	August.....	.70
March.....	1.85	September.....	1.20
April.....	2.30	October.....	1.74
May.....	2.91	November.....	2.67
June.....	3.18	December.....	4.79

*Admission rates per 1,000, mortality rates per 100,000, and indicated case fatality rates per 100, by years, 1910 to 1919, scarlet fever, entire Navy.*

Year.	Average complement, Navy and Marine Corps.	Admissions.	Deaths.	Admission rate per 1,000.	Death rate per 100,000.	Indicated case fatality rate per 100.
1910.....	58,691	32	1	0.55	1.71	3.13
1911.....	61,399	14	.....	.23	.....	.....
1912.....	61,897	33	3	.53	4.85	9.09
1913.....	65,926	22	.....	.33	.....	.....
1914.....	67,141	19	1	.28	1.49	5.26
1915.....	68,075	61	.....	.90	.....	.....
1916.....	69,294	91	.....	1.31	.....	.....
1917.....	245,580	658	5	2.68	2.04	.76
1918.....	503,792	1,214	14	2.41	2.78	1.15
1919.....	298,774	722	11	2.42	3.68	1.52

## MUMPS.

As usual, mumps prevailed throughout the year. The lowest incidence occurred in the weeks ended July 12 and 26, during which weeks cases were admitted to sick list at the rate of 6 per 1,000 per annum. During the spring and fall admission rates by weeks varied between 20 and 45 per 1,000 per annum. No deaths occurred. From the entire Navy 5,874 cases of mumps were reported. The admission rate for 1919 was therefore 19.66.

Even under the best circumstances, with the continual induction of susceptible young men into service, large numbers of mumps cases must be expected to occur until specific measures for the prevention and control of this disease have been discovered.

Mumps was naturally more prevalent at naval training stations than at other shore stations or among the personnel afloat. Annual admission rates per 1,000, by months, were as follows:

January.....	17.42	July.....	10.36
February.....	18.55	August.....	11.71
March.....	24.61	September.....	13.31
April.....	22.36	October.....	16.52
May.....	19.78	November.....	30.78
June.....	14.22	December.....	32.25

*Admission rates per 1,000, death rates per 100,000, and indicated case fatality rates per 100, by years, 1910 to 1919, mumps, entire Navy.*

Year.	Average complement, Navy and Marine Corps.	Admissions.	Deaths.	Admission rate per 1,000.	Death rate per 100,000.	Indicated case fatality rate per 100.
1910.....	58,591	1,051	.....	17.93	.....	.....
1911.....	61,599	887	.....	14.44	.....	.....
1912.....	61,897	562	.....	9.08	.....	.....
1913.....	65,926	854	.....	12.95	.....	.....
1914.....	67,141	777	.....	11.57	.....	.....
1915.....	68,075	1,053	.....	15.47	.....	.....
1916.....	66,294	726	.....	10.62	.....	.....
1917.....	245,580	9,779	.....	39.82	.....	.....
1918.....	503,792	17,832	3	35.40	0.60	0.016
1919.....	298,774	5,874	.....	19.66	.....	.....

## SMALLPOX.

During the calendar year 1919, 30 cases of smallpox with 2 deaths occurred in the Navy. The admission rate was therefore 0.10 per 1,000; death rate 0.67 per 100,000; and case fatality rate 6.67 per cent.

Cases were reported as follows:

U. S. S. <i>Drechterland</i> .....	3	Base 18, Inverness, Scotland.....	1
U. S. S. <i>Mobile</i> .....	1	Marine Barracks:	
U. S. S. <i>Oregon</i> .....	1	Quantico, Va.....	1
U. S. S. <i>South Dakota</i> .....	1	Parris Island, S. C.....	1
U. S. S. <i>Jason</i> .....	1	Naval hospital:	
Naval training station, Great Lakes, Ill.....	1	Hampton Roads, Va.....	2
Naval operating base, Hampton Roads, Va.....	1	Mare Island, Calif.....	3
Naval air station, Cape May, N. J.....	1	Puget Sound, Wash.....	1
Naval training camps:		Norfolk, Va.....	1
Seattle, Wash.....	4	Canacao, P. I.....	3
San Pedro, Calif.....	1	Recruiting stations:	
		Scranton, Pa.....	1
		Milwaukee, Wis.....	1



*Admission rates per 1,000, death rates per 100,000, and indicated case fatality rates per 100, by years, 1910 to 1919, smallpox, entire Navy.*

Year.	Average complement, Navy and Marine Corps.	Admissions.	Deaths.	Admission rate per 1,000.	Death rate per 100,000.	Indicated case fatality rate per 100.
1910.....	53,001	16	5	0.27	8.52	31.25
1911.....	61,309	2	.....	.03	.....	.....
1912.....	61,897	7	1	.11	1.62	14.29
1913.....	65,928	38	3	.58	4.55	7.89
1914.....	67,141	5	2	.07	2.98	40.00
1915.....	68,075	5	1	.07	1.47	20.00
1916.....	69,294	4	1	.06	1.44	25.00
1917.....	245,580	10	1	.04	.41	10.00
1918.....	503,792	51	3	.10	.60	5.88
1919.....	298,774	30	2	.10	.67	6.67

### TYPHOID FEVER.

The low incidence of typhoid fever during 1918 was equaled in 1919, the admission rates for both years being 0.16 per 1,000. Including para-typhoid infections, 49 cases were reported from the entire Navy. There were two deaths, making the death rate 0.67 per 100,000, which is much lower than the death rate for any previous year except 1917. The indicated case fatality rate was 4.08 per cent.

Typhoid fever has been present in many communities surrounding naval stations and in many places to which men go on liberty and leave. The disease is bound to occur occasionally in spite of all known preventive measures. Rarely, in certain individuals anti-typhoid vaccination fails to protect, or immunity disappears before revaccination. Again, in spite of perfect sanitation, a carrier will slip through now and then and cause damage before recognition. Some so-called "residual" typhoid fever is inevitable.

Admission rates and death rates for preceding years are shown in the following table. Vaccination against typhoid fever was not required until 1912.

*Admission rates per 1,000, death rates per 100,000, and indicated case fatality rates per 100, by years, 1905 to 1919, typhoid fever (including para-typhoid fever), entire Navy.*

Year.	Average complement, Navy and Marine Corps.	Admissions.	Deaths.	Admission rate per 1,000.	Death rate per 100,000.	Indicated case fatality rate per 100.
1905.....	41,313	172	11	4.16	26.62	6.40
1906.....	42,529	230	14	5.40	32.41	6.00
1907.....	46,236	249	17	5.37	36.69	6.80
1908.....	52,912	176	10	3.32	18.85	5.60
1909.....	57,172	189	17	3.35	29.73	8.90
1910.....	58,601	193	10	3.30	17.14	5.10
1911.....	61,399	222	15	3.61	24.43	6.70
1912.....	61,897	57	2	.92	3.23	3.50
1913.....	65,928	22	4	.31	6.06	18.10
1914.....	67,141	13	.....	.19	.....	.....
1915.....	68,075	18	1	.26	1.45	5.50
1916.....	69,294	17	.....	.23	.....	.....
1917.....	245,580	64	1	.26	.40	1.50
1918.....	503,792	83	9	.16	1.78	10.84
1919.....	298,774	49	2	.16	.67	4.08

## TUBERCULOSIS.

During the year 1919 there were admitted to sick list 1,409 cases of tuberculosis, and there were 172 deaths, of which 132 were due to the disease in its chronic pulmonary form. The admission rate for all forms of tuberculosis was 4.72 per 1,000 and the death rate, 57.57 per 100,000.

The incidence of tuberculosis does not vary greatly throughout the year and the calendar year 1919 was not exceptional in this respect.

The death rate from tuberculosis, all forms, in the registration area of the United States for the year 1918 was 149.1, while that from pulmonary tuberculosis was 132.4 per 100,000 of population. Figures for 1919 are not yet available. Admission rates and death rates, all forms of tuberculosis, entire Navy, for preceding years are shown in the following table:

*Admission rates per 1,000, and death rates per 100,000, by years, 1910 to 1919, tuberculosis (all forms), entire Navy.*

Year.	Average complement Navy and Marine Corps.	Admissions.	Deaths.	Admission rate per 1,000.	Death rate per 100,000.	Indicated case fatality rate per 100.
1910.....	58,691	349	45	5.98	77.13	12.89
1911.....	61,399	319	39	5.19	68.51	12.32
1912.....	61,897	264	32	4.26	51.53	12.12
1913.....	65,926	325	30	4.92	45.50	9.23
1914.....	67,141	295	38	4.39	56.59	12.88
1915.....	68,075	253	36	3.71	52.90	14.23
1916.....	69,294	287	39	4.14	56.28	13.59
1917.....	245,580	796	61	3.24	24.83	7.66
1918.....	503,792	2,398	130	4.75	26.00	5.42
1919.....	298,774	1,409	172	4.72	57.57	12.21

## \* INTestinal PARASITES.

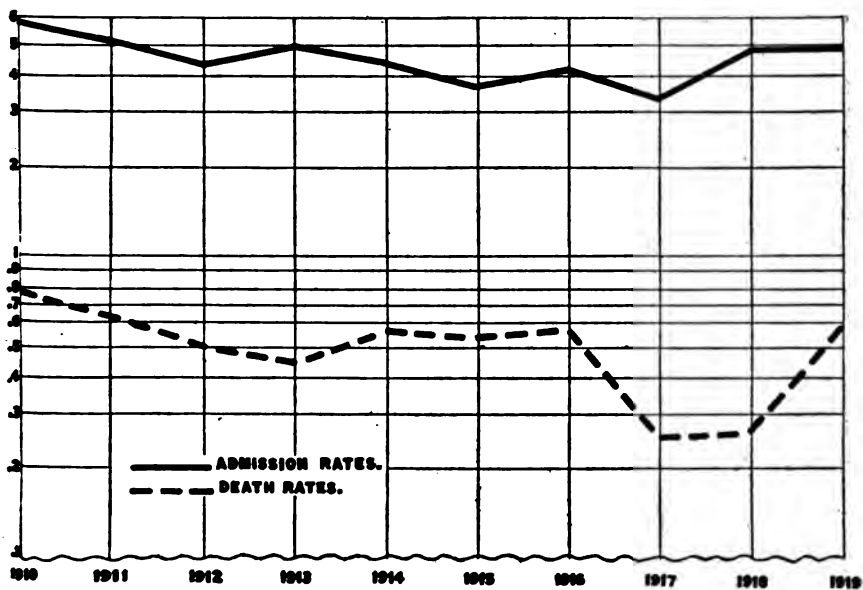
Recruits from Southern States are examined for hookworm and other intestinal parasites as a matter of routine.

The following tabulation shows the results obtained at the United States Naval Training Station, Hampton Roads, Va., in the examination of 5,369 recruits:

	Number positive.	Per cent positive.
Hookworm.....	1,403	26.13
Ascaris.....	346	6.44
Trichuris.....	254	4.73
Hymenolepis.....	169	3.15
Strongyloides.....	26	.49
Oxyuria.....	5	.093
Taenia saginata.....	4	.074
Shistosoma mansoni.....	5	.093
Total positive.....	2,212	41.30
Total examined.....	5,369	.....

**CHART No. 9.**

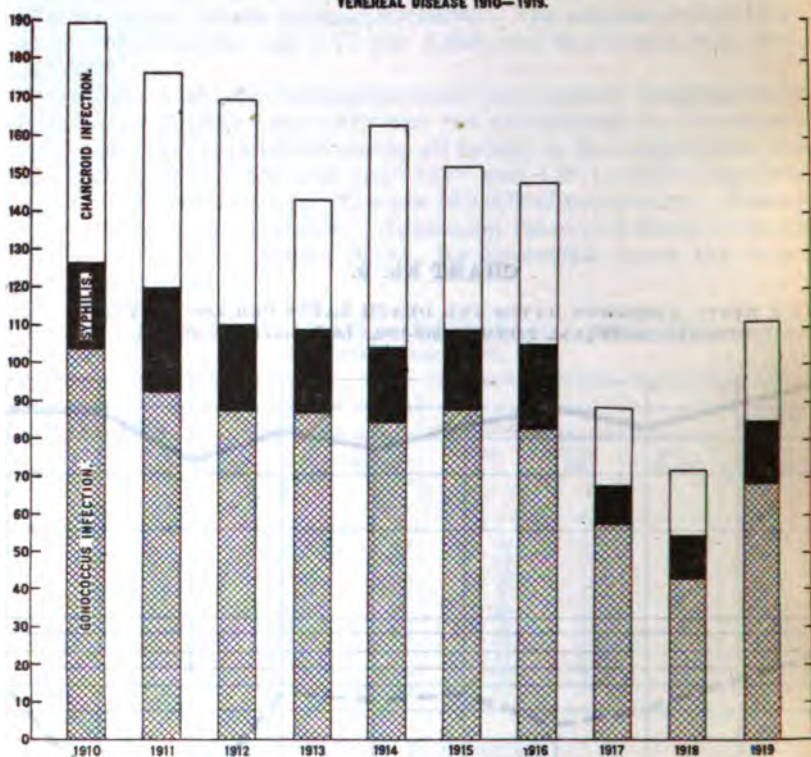
**U. S. NAVY: ADMISSION RATES AND DEATH RATES PER 1,000 BY YEARS,  
TUBERCULOSIS (ALL FORMS), 1910-1919. LOGARITHMIC SCALE.**



# CHART No. 10.

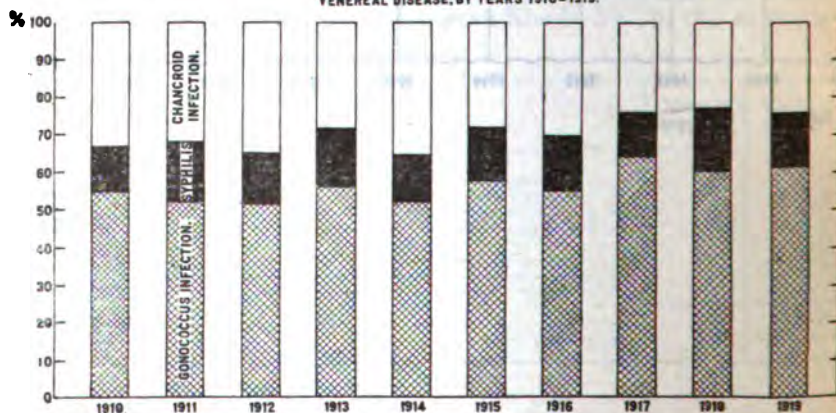
U.S. NAVY.

ANNUAL ADMISSION RATES PER 1000 AND THEIR COMPONENTS BY YEARS.  
VENEREAL DISEASE 1910-1919.



U.S. NAVY.

PERCENT OF GONOCOCCUS INFECTION, SYPHILIS & CHANCROID INFECTION, TO THE TOTAL  
VENEREAL DISEASE, BY YEARS 1910-1919.



*Combined infections.*

Hookworm-ascaris.....	65	Hookworm-oxyuria.....	1
Hookworm-ascaris, trichuris.....	28	Hookworm-schistosoma mansonii.....	1
Hookworm-ascaris-trichuris-hy-		Hookworm-trichuris-schistosoma	
menolepis.....	1	mansonii.....	1
Hookworm-ascaris-strongyloides.....	5	Ascaris-trichuris.....	21
Hookworm-ascaris-hymenolepis.....	1	Ascaris-hymenolepis.....	2
Hookworm-hymenolepis.....	22	Ascaris-strongyloides.....	1
Hookworm-trichuris.....	42	Hymenolepis-trichuris.....	15
Hookworm-strongyloides.....	11	Hymenolepis-strongyloides-hook-	
Hookworm-trichuris-hymenolepis.....	3	worm.....	1

Positive by States were as follows:

State.	Num- ber ex- amined.	Num- ber pos- itive.	Per cent pos- itive.	State.	Num- ber ex- amined.	Num- ber pos- itive.	Per cent pos- itive.
Louisiana.....	77	18	23.38	Florida.....	252	159	63.09
Virginia.....	1,091	422	38.68	Arkansas.....	23	5	21.73
North Carolina.....	821	447	54.45	Missouri.....	42	11	26.19
West Virginia.....	391	146	37.34	Porto Rico.....	27	36	133.33
Maryland.....	504	85	16.86	Philippine Islands.....	21	21	100.00
District of Columbia.....	140	17	12.14	Oklahoma.....	4	1	25.00
Georgia.....	789	389	49.30	Virgin Islands.....	2	1	50.00
South Carolina.....	480	224	26.66	China.....	1	1	100.00
Kentucky.....	113	35	30.97	New Mexico.....	1		
Texas.....	178	31	17.41	Cuba.....	1		
Tennessee.....	192	96	50.00	Pennsylvania.....	7	2	28.59
Mississippi.....	91	16	17.58				
Alabama.....	121	59	48.76	Total.....	5,369	2,212	41.20

For the entire Navy the admission rate for the above listed intestinal parasites was 1.98 per 1,000 and for the whole class of parasites (fungi and animal parasites) 12.39 per 1,000. There were two deaths from amebic abscess of the liver.

*Trachoma.*

Years.	Average comple- ment.	Admis- sions.	Rate per 1,000.	Years.	Average comple- ment.	Admis- sions.	Rate per 1,000.
1912.....	61,897	3	0.048	1916.....	69,294	12	0.17
1913.....	65,926	8	.12	1917.....	245,580	37	.16
1914.....	67,141	8	.12	1918.....	503,792	59	.12
1915.....	68,075	31	.45	1919.....	298,774	43	.14

## VENEREAL DISEASES.

For the calendar year 1919 the admission rate for venereal diseases as a class was 111.62. This rate is higher than rates obtaining during the war—88.71 for 1917 and 70.18 for 1918—but considerably lower than the rate for any year previous to the war. The mean rate for the five-year period 1912 to 1916, inclusive, is 154.79. The rate, 111.62, therefore represents a reduction of 27.8 per cent in the incidence of venereal diseases as compared with the incidence in previous years, and the difference, 43.17, means 12,898 fewer cases during the year than would have occurred had the admission rate been as high as in average years before the war. Inasmuch as the number of sick days per admission to sick list on account of venereal diseases averaged 14 during the five-year period mentioned, the saving in

sick days amounted to 180,572 days, or the equivalent of full-time service of approximately 500 men for 365 days.

Several factors tended to cause high rates for venereal diseases during the year. For several months large numbers of men were granted leave and extended liberty in Paris, and in French and Italian ports as well as in England. Exposure rates and attack rates were high in such instances. The remark made above with regard to the effect upon morbidity rates of the substitution of recruits for trained men leaving the service applies to the venereal diseases as well as to other communicable diseases. Recruits do not especially tend to increase the admission rate for venereal disease while at the training station, but do for a while after getting out into the service at large. At present, admission rates for shore stations in the United States, exclusive of receiving ships, vary from 55 to 75 per 1,000 per annum. On account of the nature of the activities carried on at receiving ships it is not to be expected that admission rates will average as low as for other stations.

It is to be borne in mind that certain factors which made for low admission rates in 1917 and 1918, such as the effect of appeal to patriotism, excitement of war, and greater demands of active duty in war times are not operative now. However, the national program for the prevention and control of venereal diseases, and correction of social conditions which make for their spread, has now been adopted by all States but one, and the nation-wide campaign against these diseases may be expected to have its effect upon admission rates for venereal diseases in the Navy during the years to come.

Full advantage is being taken of the provisions of the act of Congress, July 9, 1919, creating the United States Interdepartmental Social Hygiene Board and a Division of Venereal Diseases in the Bureau of the United States Public Health Service. The social hygiene and law enforcement work taken over by the Bureau of Navigation when the Navy Department Commission on Training Camp Activities ceased to exist, is organized on a practical basis and is producing good results in complete coordination with the activities of the Bureau of Medicine and Surgery. Measures for the prevention and control of venereal diseases in the Navy are also correlated with those of Federal and State official agencies through the Interdepartmental Board and the United States Public Health Service. The officer in charge of the Division of Preventive Medicine in the Bureau of Medicine and Surgery has been assigned additional duty in the Sixth Division of the Bureau of Navigation and is detailed as the Navy Department member of the United States Interdepartmental Social Hygiene Board in order that complete coordination of medical and social hygiene activities may be brought about. The Interdepartmental Board was created as a coordinating agency, and is charged by the Congress with the duty of preventing reduplication of work in the field of venereal-disease control by the Army, Navy, and Public Health Service in their relations with States and cities.

The national program for the prevention and control of venereal diseases is necessarily a broad one and involves many agencies, unofficial as well as official. The program could not have been put into effect without Federal backing, and inasmuch as each State is sovereign within its own territory, the Federal Government not having police powers therein except as delegated or exercised in agreement

by the State or local government, the program could not succeed without the aid of State support, financial and otherwise. Such support has been secured in all States but one.

The Navy is naturally interested in securing the abatement of social conditions which make for the dissemination of venereal diseases in civilian communities, especially those constituting the environment of naval stations and in ports visited by naval vessels, because it is largely due to the lack of concern in the past on the part of State and local officials and the citizens of communities in the United States that high venereal disease rates have prevailed in the Navy.

The sociological problems involved in the prevention and control of these diseases are complicated. The complete program requires the organized and coordinated efforts of the United States Government, State governments, State and local health departments, and such unofficial agencies as the American Social Hygiene Association, universities, colleges, and local business, social, and social hygiene organizations.

The activities include medical work, scientific research, educational measures, recreational measures, economic measures, and protective social measures, including law-enforcement work, detention, and rehabilitation or reformation of women and girls. The following outline of organization indicates the manner in which activities are being coordinated.

#### I. OFFICIAL AGENCIES.

##### A. FEDERAL AGENCIES.

(1) *United States Public Health Service*.—Activities include medical, educational and law enforcement measures (inducement of States to adopt and enforce proper laws and regulations). All States except Nevada and the District of Columbia have complied with the requirements of minimum regulations prescribed by the Treasury Department, with regard to laws and enforcement of laws for the control of venereal diseases, and have received their allotments of Federal funds appropriated.

Public Health Service officers have been detailed to cooperate with State health departments in all States except Nevada.

Approximately 500 venereal disease clinics are being operated under the supervision of State health departments which are cooperating with the United States Public Health Service.

(2) *United States Interdepartmental Social Hygiene Board*.—Composed of the Secretary of War, Secretary of the Navy, Secretary of the Treasury, and a medical officer of the Army, of the Navy, and of the Public Health Service. Activities: Promotion of scientific research, development of educational methods and programs, and law enforcement work. Charged by the Congress with the disbursement of all Federal moneys appropriated to aid States in the prevention and control of venereal diseases. The official agency of the United States Government created by Chapter XV, act of Congress, July 9, 1918, to coordinate Federal activities for the control of venereal diseases and to operate programs to secure enforcement of laws for the protection of the military and naval forces of the United States.

Programs include (a) investigation of social conditions which make for the spread of venereal diseases; search for foci of infection, and assistance to secure proper care or detention of infected civilian persons; (b) follow-up work with persons who have been carriers of venereal disease to prevent them from becoming infected again or infecting other persons; (c) investigation of facilities for the care and maintenance of persons infected with venereal disease who may be sources of infection of military or naval personnel; (d) presentation of the results of investigation to regularly constituted law-enforcing agencies.

The protective social measures program of the board is intended to carry out the intent of the Congress and it contemplates the repression and eradication of prostitution in all its forms. The board maintains cooperative relationship with all official and unofficial agencies which are factors in such a program.

(3) *United States Department of Justice*.—Enforcement of the Mann Act.

## B. STATE AGENCIES.

- (1) Governor.
- (2) State health department.
- (3) Board of corrections and charities, board of control, etc.
- (4) State police.
- (5) Attorney General.

## C. LOCAL AGENCIES.

- (1) Mayor.
- (2) City health department.
- (3) Chief of police.
- (4) Prosecuting attorney.
- (5) Police courts, municipal courts, juvenile courts, etc.
- (6) Local military and naval officials.

## II. UNOFFICIAL AGENCIES.

A. Of national scope: (1) American Social Hygiene Association; (2) American Red Cross; (3) American Public Health Association and all other social or public health organizations which are measurably concerned in venereal disease control.

B. State social hygiene societies and other State social or public health organizations which are measurably concerned in venereal disease control.

C. Local unofficial agencies: (1) Law enforcement and social hygiene committees; (2) chamber of commerce; (3) Rotary Club; (4) parents and teachers' association; (5) Mothers Club, women's clubs; (6) religious organizations.

The places wherein and conditions whereunder prostitution in one or more of its various forms may be discovered are:

1. Open "red-light" districts.
2. Isolated open houses of prostitution (not in a "district").
3. Hotels.
4. Rooming and lodging houses.
5. Apartments.
6. Taxicab practices.
7. Public dance halls.
8. Burlesque theaters.
9. Street solicitation.
10. Public parks and resorts.
11. Road houses (suburban).
12. Massage or "beauty" parlors.
13. Cabarets and restaurants providing booths for patrons.
14. "Side rooms" or "wine rooms" similar to those originally provided in licensed saloons.

Essential requirements of the law enforcement program adopted by States in cooperation with the United States Interdepartmental Social Hygiene Board and United States Public Health Service:

1. Spread of venereal diseases declared unlawful.
2. Physicians, hospitals, and others required to notify venereal diseases to the health authorities in accordance with approved State regulations.
3. Imposition of penalty for failure to report cases of venereal disease.
4. Investigation of cases to discover and control sources of infection.
5. Provisions for the control of infected persons who are not disposed to protect others from infection.
6. Hospital facilities for the treatment of infected persons and an adequate number of beds at the disposal of health authorities for the detention and isolation of such infected persons as can not be properly cared for under the supervision of a clinic or practicing physician.
7. City ordinances or regulations of the city health department embodying the essential features of the State venereal disease control law, prohibiting prostitution in all forms, with adequate penalties and provision for rehabilitative treatment, including probation and commitment to institutions when necessary. Ordinance to require licensing of rooming houses and hotels, and revocation of license by competent authority upon proof of occupation or use for purposes of or in aid of prostitution. Licensing of dance halls, taxicabs, and for-hire automobiles and provision for the revocation of such licenses by competent authority upon proof of occupation or use for purposes of or in aid of prostitution.
8. Invocation of the injunction and abatement law for the repression or eradication of prostitution.
9. Adoption by the city government of a policy of consistent enforcement of laws adopted in accordance with the program.



Prostitution flourishes only when city officials tolerate it, and those engaged in prostitution know whether the local authorities are really in earnest or are making only spasmodic efforts in order to impress local constituents. When a city really determines to free itself of syphilis and gonorrhea spreaders, prostitutes and those who aid or solicit for them know that they have reached the end of their business careers in that city.

The United States Interdepartmental Social Hygiene Board in connection with that phase of its work that deals with protective social measures, and law enforcement activities, has field agents in all States in which Army or Navy personnel are stationed. In many instances these agents have their local headquarters in the near-by city or town and are constantly available. In other instances the naval station is at some distance from district headquarters. In 15 of the States the field agents of the board have been assigned definitely, by agreement with the State government, to the State health department, where they may exercise delegated State police power. The agents of the United States Interdepartmental Board have received special training along the lines of their work and are carefully guided in matters of policy by the executive secretary of the board, resident in Washington, D. C. Some of the field agents are men, others women.

As a rule, the best results will be secured by naval officials through cooperation with the local representative of the United States Interdepartmental Board, since this is the only official agency in the field having functions coordinated by the Army, Navy, and United States Public Health Service, and correlated with activities of the State and local health authorities. It is one of the duties of this representative to trace individual sources or foci of infection to which naval personnel have been or may be exposed.

Medical officers of the Navy are instructed to cooperate with the aid for morale and the agent of the Interdepartmental Board. Information given to the medical officer, without coercion, by patients or others is, with the approval of the commandant, turned over to the authorized representative of the board as directly and promptly as possible.

The Interdepartmental Board performs law-enforcement work, but, as a Federal agency, has no actual law-enforcing authority in the different States. Hence, its agents make investigations as indicated in the program outlined above, but must look to regularly established State or local official agencies for action to correct unsatisfactory conditions. Cooperation is essential to success in the program of protective social measures. In the great majority of communities cooperation has been secured.

The program for the prevention and control of venereal diseases in the Navy has not been changed during the year, but with the progress of organized efforts in civilian communities, where, after all, the greater part of the problem really lies, the work of the Medical Department of the Navy should be enhanced.

Preventive measures are directed primarily toward educating the personnel so that no man may remain ignorant of the nature and proper care of each of the venereal diseases, and of the serious consequences which may follow infection. By general order, the duty of instructing the personnel devolves upon medical officers. It is required that emphasis be laid upon the moral and physical evils of

incontinence, and that it be made clear that continence is not incompatible with health and the fullest degree of physical and mental vigor.

All men are informed that in case of exposure to venereal infection contrary to instruction, advice, and warning, failure to report at the sick bay or dispensary upon returning to ship or station, for the purpose of taking early medical treatment as a final recourse to prevent infection, will be regarded as disobedience of orders. Opportunity is given men voluntarily to report exposure. Medical officers are required to report all cases of venereal disease in their statistical returns.

In connection with educational measures for the prevention and control of venereal diseases the Bureau of Medicine and Surgery publishes monthly for the information of medical officers comparative incidence rates for these diseases at ships and stations, and seeks by special articles to emphasize the importance of instruction, prompt institution of medical preventive treatment, early diagnosis, and proper management of cases. Circulars containing instructions relative to each of the diseases, and warning circulars, are also issued by the bureau through the naval medical supply depots for distribution to patients and to the personnel in general, respectively.

The Bureau of Navigation, through its social hygiene section, seeks to aid medical officers in their work of instructing the personnel by developing, purchasing, and arranging for the shipment of literature and other materials which have proven useful for this purpose.

At the present time much use is being made of motion-picture films prepared for lecture purposes by the American Social Hygiene Association, assisted financially by the United States Interdepartmental Social Hygiene Board. These pictures include animated diagrams, and they are technical in character, presenting in an interesting and lucid manner the anatomy and physiology of the male and female genito-urinary organs, as well as the pathology and proper treatment of gonorrhea and syphilis. The films serve to impress upon the minds of those who view them the importance of prompt and careful diagnosis and thorough treatment. They tend to discourage the use of nostrums and quackery.

The social hygiene section also develops and supplies educational materials intended for general distribution among the men of the Navy. These include pamphlets, folders, and leaflets, as well as bulletin-board outfits, posters, stereomotorgraphs, stereopticons, and lantern slides. A traveling social hygiene exhibit is also maintained. One of the purposes of the exhibit, when accompanied by a medical officer, is to enable a study to be made of the psychological effect upon those who view the different items of the exhibit, and to stimulate discussion among medical officers and others in order that suggestions and new ideas may be obtained.

The following tables contain venereal-disease statistics of the Navy for the calendar year 1919 and for the nine preceding years:

*Admissions, admission rates, and sick days for venereal diseases, by years.*

## SUMMARY.

Year.	Average comple- ment.	Admis- sions.	Admission rate per 1,000.	Total sick days.	Average sick days.	Invalided or died.
1910.....	58,340	11,071	189.76	135,507	12.12	191
1911.....	61,399	10,827	176.33	161,358	14.9	185
1912.....	61,897	10,495	169.55	146,135	13.9	153
1913.....	65,926	9,434	143.09	141,378	14.9	138
1914.....	67,141	10,932	162.82	142,961	13.0	118
1915.....	68,075	10,318	151.56	150,939	14.6	101
1916.....	66,294	10,261	148.97	165,984	16.1	94
1917.....	245,580	21,786	88.71	231,254	9.3	172
1918.....	503,792	35,360	70.18	456,538	12.91	<sup>1</sup> 543
1919.....	298,774	33,345	111.62	558,421	16.74	<sup>2</sup> 729

## SYPHILIS.

1910.....	58,340	1,315	22.54	47,893	34.1	118
1911.....	61,399	1,665	27.11	66,210	39.7	84
1912.....	61,897	1,424	23.00	56,759	39.8	75
1913.....	65,926	1,447	21.94	62,630	43.2	74
1914.....	67,141	1,332	19.83	53,016	39.8	51
1915.....	68,075	1,454	21.35	65,682	45.1	61
1916.....	66,294	1,542	22.25	67,814	43.9	67
1917.....	245,580	2,469	10.06	67,345	27.2	101
1918.....	503,792	5,980	11.83	180,975	27.00	<sup>3</sup> 281
1919.....	298,774	4,916	16.45	199,359	34.46	<sup>4</sup> 240

## GONORRHEA.

1910.....	58,340	6,062	103.90	31,813	5.20	17
1911.....	61,399	5,658	92.15	33,946	5.90	26
1912.....	61,897	5,403	87.29	35,140	6.50	26
1913.....	65,926	5,320	80.69	33,204	6.20	27
1914.....	67,141	5,708	84.94	36,218	6.30	10
1915.....	68,075	5,965	87.91	35,404	5.90	11
1916.....	66,294	5,731	82.70	43,357	7.50	7
1917.....	245,580	14,099	57.41	101,062	7.16	70
1918.....	503,792	21,404	42.48	218,058	10.18	<sup>5</sup> 282
1919.....	298,774	20,410	68.32	299,044	14.00	<sup>6</sup> 485

## CHANROID.

1910.....	58,340	3,703	63.32	20,625	5.6	1
1911.....	61,399	3,523	57.07	22,908	6.5	.....
1912.....	61,897	3,669	59.26	21,334	5.8	.....
1913.....	65,926	2,668	40.46	12,920	4.8	.....
1914.....	67,141	3,622	58.06	19,819	5.0	1
1915.....	68,075	2,890	42.30	13,717	4.7	.....
1916.....	66,294	3,057	44.02	15,996	5.2	1
1917.....	245,580	5,220	21.25	22,446	4.3	1
1918.....	503,792	7,998	15.87	77,505	9.7	.....
1919.....	298,774	8,019	26.84	91,018	11.4	4

<sup>1</sup> 15 deaths.<sup>2</sup> 11 deaths.<sup>3</sup> 14 deaths.<sup>4</sup> 10 deaths.<sup>5</sup> 1 death.

W. C. BRAISTED.

*Chelsea, Mass.*—The four solaria, on the front of the main hospital, have been so inclosed or roofed over as to make them available for the treatment of cases requiring fresh air and sunshine at low temperature without exposure to inclement weather. The Red Cross Building has been doubled in size and now includes an assembly room and theater. Occupational therapy is carried on in two small portable houses supplied by the Woman's Seaman's Friend Society, which, for many years, was the only civilian organization manifesting a vital interest in this hospital. A new ice plant was put into operation in May, 1919, and has proved very satisfactory. Striking improvements have been made in the galley, increasing economy and efficiency and the comfort of the personnel there employed. Admissions and readmissions for 1919 were 3,061, of which 1,589 were returned to duty from here. The total sick days were 66,249. The eye, ear, nose, and throat department has treated 1,363 patients. The large number of cases of chronic otitis media coming under observation, and the facts elicited on questioning, suggests that more attention should be given at recruiting offices to this form of disability. The operations performed in this department numbered 670. In the surgical service, 320 major operations were performed. The genito-urinary department has had gratifying results with mercurochrome in the treatment of gonorrhea. The orthopedic work has been a prominent feature during the year, the material being furnished by those injured in the war and by the industrial personal of the navy yard, etc. A practical course in massage has been given to hospital corpsmen, some of whom showed marked aptitude for it. The work of the laboratory has been extensive and varied. Some 25,000 tests, examinations, cultures, blood counts, etc., have been made. In the X-ray department, 3,397 cases have been examined. An important feature has been the therapeutic as well as the diagnostic service rendered. The dental department has handled 1,589 cases.

## STATISTICS.

The basis for all medical department statistics lies in the forms used in connection with the preparation and keeping of the "Health Record," which deals with the physical requirements and health of the personnel of the Navy and Marine Corps.

*Table No. 1.*—Detailed statement of diseases and injuries for the calendar year.

(a) This table gives an alphabetical list of disabilities, the Navy class and international numbers (from the Navy nomenclature), shows the method of taking up and disposing of all cases, the number of sick days or time lost to the service (from Form F cards), and a summary with comparative data for 10 previous years (from Form K).

(b) The class number (Roman numeral) refers to the classification of the Navy nomenclature, as follows:

- CLASS
- I. Diseases of blood.
  - II. Diseases of circulatory system.
  - III. Diseases of digestive system.
  - IV. Diseases of ductless glands and spleen.
  - V. Diseases of ear.
  - VI. Diseases of eye and adnexa.
  - VII. Diseases of genito-urinary system (nonvenereal).
  - VIII. Communicable diseases transmissible by oral and nasal discharges.
  - IX. Communicable diseases transmissible by intestinal discharges.
  - X. Communicable diseases transmissible by insects and other arthropods.
  - XI. Tuberculosis (all forms).
  - XII. Venereal diseases.
  - XIII. Other diseases of infective type.
  - XIV. Diseases of lymphatic system.
  - XV. Diseases of mind.
  - XVI. Diseases of motor system.
  - XVII. Diseases of nervous system.
  - XVIII. Diseases of respiratory system.
  - XIX. Diseases of skin, hair, and nails.
  - XX. Hernia.
  - XXI. Miscellaneous diseases and conditions.
  - XXII. Parasites (fungi and certain animal parasites).
  - XXIII. Tumors.
  - XXIV. Female diseases and conditions.
  - XXV. Injuries.
  - XXVI. Poisons.

(c) The international number refers to the classification of causes of death prepared by the International Commission (Paris, July 1 to 3, 1909).

(d) In the case of wounds, etc., and poisons, key letters immediately following the title (e. g., Abrasion, unqualified "G") are given for classification of the cause of such injury, and are interpreted as follows:

- A. Suicidal.
- B. Homicidal.
- C. Conflagration. Includes all injuries incident to general conflagration. Burns otherwise received are not classed hereunder.
- D. Accidental drowning or submersion.
- E. Traumatism by firearms, accidental. To include all injuries caused by the projectile, the blast from great guns, or from the piece when fired.
- F. Traumatism by explosion. To include powder, gas, compressed air, or steam explosions; also the explosion of a gun.
- G. Traumatism by fall.
- H. Traumatism by machines.
- I. Traumatism by other crushing.
- J. Traumatism due to athletic sports.
- K. Casualty in action.
- L. Traumatism due to other external violence not classified above.

*Table No. 2.*—Distribution of diseases and injuries among occupational groups for the calendar year.

(a) This table shows by occupational groups the class of disability, average complement, number of admissions, deaths, suicides, invalidated from service (with rates per 1,000), and sick days; also the total for all occupations, giving admissions, deaths, invalidated from service (with rates per 1,000 based on the entire service complement), and sick days.

(b) The average complement for each occupational group is obtained from the Navy Year Book, except in case of prisoners, which is obtained from the office of the Judge Advocate General of the Navy, and grouped as follows:

Officers: Line, medical, dental, pay, chaplain, professor of mathematics, naval constructor, civil engineer, chief and warrant, and Marine Corps.

Midshipmen: All classes of this personnel.

Electricians: All classes of this rating.

Engine room: Machinist's mate and oiler.

Fireroom: Fireman and water tender.

All other artificers: Blacksmith, boiler maker, carpenter's mate, cooper, smith, painter, plumber and fitter, printer, sailmaker's mate, ship fitter, and shipwright.

Clerical: Storekeeper and yeoman.

Culinary: Baker, commissary steward, cook, messman, ship's cook, and steward.

Hospital corps: All ratings of this corps.

Marines (enlisted): All enlisted ratings except Marine Band and drummer and trumpeter.

Musicians: Bandmaster, bugler, drummer, leader, musician, and trumpeter.

Prisoners: Detentioners and general court-martial prisoners.

Apprentices: Apprentice seamen.

Ordnance: Gunner's mate and turret captain.

All other deck ratings: Boatswain's mate, coxswain, landsman, master-at-arms, mate, quartermaster, seaman, and seaman-gunner.

(c) Number of admissions, deaths, suicides, invalided from service and sick days obtained from Form F cards.

(d) Rate per 1,000 is based on the average complement at the heading for each group.

Death rate and invalided rate is obtained by multiplying the number of deaths or the number invalided by 1,000 and dividing by the average complement.

Percentage of sick is obtained by multiplying the daily average of patients by 100 and dividing by the average complement.

Daily average of patients is obtained by dividing the sick days by the number of year days.

*Table No. 3.*—Deaths in the Navy and Marine Corps for the calendar year. This table is a summary of deaths, showing the cause, number, and the distribution among the officers and men.

*Table No. 4.*—Discharged from the service by reason of physical disability during the calendar year. This table is a summary of those invalided from the service or retired on account of physical disabilities, showing the disability, number, and distribution among the officers and men.

*Table No. 5.*—Surgical operations for the calendar year. This table is a summary of surgical operations performed, showing the condition for which the operation was performed, result of the operation, and the anesthetic employed.

*Table No. 6.*—Dental operations for the calendar year. This table shows a summary of dental operations and treatment, together with the number for each kind.

*Table No. 7.*—Recruiting statistics for the Navy and Marine Corps for the calendar year. This table is a summary of persons applying, examined, and enlisted, showing the total number of applicants, total enlisted, number examined by the medical officer, number rejected by the medical officer for physical disqualifications, in the Navy for original and reenlistment, in the Marine Corps for original and reenlistment; also accepted applicants reexamined, and the number examined, etc., for all classes of the Naval Reserve and Marine Corps Reserve.

A list of the principal causes of rejection by the medical officer is also appended.

TABLE NO. 1.—DETAILED STATEMENT OF DISEASES AND INJURIES FOR THE CALENDAR YEAR 1919.

Diagnoses.	Taken up as—				Disposition.						days Number of sick this year.
	Remaining from last year.	Admitted.	Readmitted.	Duty.	Diagnosis changed.	Died.	Invalided from service.	Ran.	Transferred.	Continued to next year.	
DISEASES.											
Abscess about rectum (Class III, Inter. 110B).....	30	251	178	250	38	.....	3	1	149	9	10,387
Abscess about urethra (Class VII, Inter. 125).....	1	21	19	21	6	.....	.....	.....	14	.....	421
Abscess of axilla (Class XIV, Inter. 84).....	9	121	49	126	11	.....	.....	.....	35	7	2,260
Abscess of brain (Class XVII, Inter. 80).....	.....	5	.....	.....	2	3	.....	.....	.....	.....	18
Abscess of Cowper's glands (Class VII, Inter. 127).....	.....	2	2	.....	2	.....	.....	.....	2	.....	13
Abscess of eye and adnexa (Class VI, Inter. 75C).....	1	23	7	23	1	.....	.....	.....	7	.....	116
Abscess of kidney (Class VII, Inter. 122).....	3	6	9	4	4	.....	2	.....	8	.....	585
Abscess of kidney, perinephritic (Class VII, Inter. 122).....	2	12	13	9	5	.....	1	.....	10	2	1,241
Abscess of larynx (Class XVIII, Inter. 87).....	.....	2	3	1	2	.....	.....	.....	2	.....	23
Abscess of liver (Class III, Inter. 115).....	.....	8	3	3	2	2	2	.....	2	.....	366
Abscess of lung (Class XVIII, Inter. 98).....	7	9	23	12	4	3	2	.....	16	2	1,749
Abscess of lymph-node (Class XIV, Inter. 84).....	11	147	104	143	26	.....	1	.....	89	3	5,264
Abscess of nasal septum (Class XVIII, Inter. 86).....	.....	17	7	12	3	.....	.....	.....	9	.....	315
Abscess of pharynx (Class III, Inter. 100).....	2	43	7	44	1	.....	.....	.....	7	.....	451
Abscess of prostate gland (Class VII, Inter. 126).....	.....	14	9	10	4	1	.....	.....	8	.....	420
Abscess of salivary gland (Class III, Inter. 99B).....	2	5	3	6	3	.....	.....	.....	1	.....	116
Abscess of scrotum (Class VII, Inter. 127).....	1	22	11	23	5	.....	.....	.....	6	.....	295
Abscess of tongue (Class III, Inter. 99B).....	.....	2	1	1	1	.....	.....	.....	1	.....	18
Abscess, subphrenic (Class III, Inter. 118).....	.....	5	3	.....	2	1	2	.....	2	1	187
Abscess, unqualified (Class XIII, Inter. 144).....	166	3,282	957	3,259	303	3	10	2	762	66	44,432
Absence of lens (Class VI, Inter. 76C).....	.....	1	1	.....	1	.....	.....	.....	1	.....	8
Achylia gastrica (Class III, Inter. 103).....	1	1	1	3	.....	.....	.....	.....	.....	.....	44
Acne (Class XIX, Inter. 145C).....	18	90	56	78	22	.....	16	.....	43	5	4,537
Acromegaly (Class IV, Inter. 55).....	1	1	4	.....	1	.....	2	.....	3	.....	85
Adenoids (Class XVIII, Inter. 86).....	9	140	107	127	33	.....	2	.....	90	6	2,340
Adenoma (Class XXIII, Inter. 46).....	.....	23	24	17	9	.....	1	.....	20	.....	545
Adhesions about gall-bladder (Class III, Inter. 115).....	2	10	16	7	3	.....	7	.....	10	1	529
Adhesions about stomach (Class III, Inter. 117).....	4	12	21	12	6	.....	4	.....	13	2	612
Adhesions of peritoneum (Class III, Inter. 117).....	57	276	372	207	103	2	111	3	264	15	12,985
Adhesions, preputial (Class VII, Inter. 127).....	2	.....	1	3	.....	.....	.....	.....	.....	.....	137
Adiposis dolorosa (Class XXI, Inter. 55).....	.....	1	2	1	.....	.....	.....	.....	2	.....	37
Albuminuria (Class VII, Inter. 120).....	3	25	25	16	14	.....	3	.....	20	.....	798
Alopecia (Class XIX, Inter. 146C).....	.....	2	4	3	.....	.....	.....	.....	3	.....	137
Alopecia areata (Class XIX, Inter. 146C).....	.....	4	4	3	2	.....	.....	.....	3	.....	309
Amnesia (Class VI, Inter. 75C).....	1	2	1	2	.....	.....	1	.....	1	.....	216
Amblyopia (Class VI, Inter. 75C).....	11	106	81	37	31	.....	63	.....	62	5	2,129
Amputation stump (Class XXI, Inter. 149).....	56	221	298	74	15	.....	210	.....	250	26	22,622

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>DISEASES—Continued.</b>											
Anemia of brain (Class XVII, Inter. 74).....		1		1							6
Anemia, pernicious (Class I, Inter. 54).....	1	7	3	1	4	3			3		32
Anemia, simple (Class I, Inter. 54).....	9	72	58	63	27		3		43	3	3,005
Anemia, splenic (Class I, Inter. 54).....		1	1	1			1				23
Aneurism (Class II, Inter. 81).....	1	20	17	7	5	5	9		11	1	913
Aneurism of heart (Class II, Inter. 79C).....		1					1				0
Aneurism, varicose (Class II, Inter. 81).....		3	1		1				3		3
Aneurismal varix (Class II, Inter. 83).....		1					1				29
Angina ludovici (Class III, Inter. 100).....		26	8	23	4				7		336
Angina pectoris (Class II, Inter. 80).....	1	19	21	9	4	3	4		19	2	586
Angioma (Class XXIII, Inter. 46).....		3	5	3	1				4		84
Angiopathic edema (Class XVII, Inter. 74).....	2	17	15	17	5		2		9	1	228
Ankylosis of arytenoid cartilage (Class XVIII, Inter. 87).....		1					1				9
Ankylosis of joint (Class XVI, Inter. 147).....	26	163	140	59	22		122		115	11	9,607
Ankylosis of ossicles (Class V, Inter. 76).....	1	6	4	4	1		2		4		130
Anthrax (Class XIII, Inter. 22).....	1	4	2	3	1	1			2		211
Anti-inoculation, unqualified (Class XXI, Inter. 189A).....	5	319	71	321	16				53	5	1,274
Aortitis (Class II, Inter. 81).....	3	4	5	2	6		1		2	1	351
Aphasia (Class XVII, Inter. 74).....		4	5	2	3		1		4		142
Apoplexy (Class XVII, Inter. 64).....	1	6	7	1	4	3	1		5		238
Appendicitis, acute (Class III, Inter. 103).....	320	1,906	1,764	1,890	438	24	6	13	1,521	99	72,044
Appendicitis, chronic (Class III, Inter. 103).....	214	1,175	1,185	1,256	313	3	18	3	935	46	49,065
Arterial sclerosis, cerebral (Class XVII, Inter. 81).....	1	3	5	3	1				5		342
Arterial sclerosis, general (Class II, Inter. 81).....	7	14	38	12	14	2	9		22		951
Arthritis, acute (Class XVI, Inter. 147).....	72	481	330	417	163	1	2	1	278	21	16,185
Arthritis, chronic (Class XVI, Inter. 147).....	115	530	782	332	165	1	263		640	26	30,754
Arthritis, deformans (Class XVI, Inter. 48A).....	1	9	14	3	3		2		14	2	707
Ascariasis (Class XXII, Inter. 107).....	3	62	43	62	21				24	1	601
Aspergilliosis (Class XXII, Inter. 25B).....		1		1							19
Asthma (Class XVIII, Inter. 96).....	37	165	210	135	33		74	1	153	16	5,639
Astigmatism (Class VI, Inter. 75C).....	20	521	185	458	65		91		114	7	5,339
Ataxia, hereditary (Class XVII, Inter. 63).....		3	3	1	1		2		1	1	246
Atony of bladder (Class VII, Inter. 124).....	1	2	2				4		1		48
Atony of stomach (Class III, Inter. 103).....		2	2	1	1				1	1	178
Atrophy of (bone or cartilage) (Class XVI, Inter. 149).....		11	9	1	2		8		8	1	472
Atrophy of muscle (Class XVI, Inter. 149).....	8	51	55	15	14		47		36	2	2,000
Atrophy of optic nerve (Class VI, Inter. 75C).....	2	16	12	1	4		12		11	2	735
Atrophy of skin (Class XIX, Inter. 145C).....		1		1							1
Atrophy of testicle (Class VII, Inter. 127).....	4	18	18	13	5		5		15	2	571
Autointoxication, intestinal (Class III, Inter. 110B).....	20	1,078	206	1,070	106		4		120	4	5,631
Bacteriuria (Class VII, Inter. 124).....	1				1						36
Balanoposthitis (Class VII, Inter. 127).....	9	100	30	97	13			2	24	3	1,765
Beriberi (Class XXI, Inter. 27).....	1	2	3	4					2		102
Blepharitis (Class VI, Inter. 75C).....	6	37	23	37	7		3		19		602
Botulism (Class XIII, Inter. 164).....	1	3	2	3					3		35
Bradycardia (Class II, Inter. 85).....	2	2		3	1						35



TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>DISEASES—Continued.</b>											
Bromidrosis (Class XIX, Inter. 145C).....		10	2	7	1				3	1	140
Bronchiectasis (Class XVIII, Inter. 90).....	1	6	4	1	3		4		3		219
Bronchitis, acute (Class XVIII, Inter. 90).....	297	10,718	2,455	10,353	919			12	1,902	194	91,372
Bronchitis, chronic (Class XVIII, Inter. 90).....	183	1,426	1,835	1,173	552		204	7	1,407	101	62,299
Bronchitis, fibrinous (Class XVIII, Inter. 90).....		4	4	3	1		1		3		129
Bursitis, acute (Class XVI, Inter. 149).....	15	171	76	162	28		1		66	5	3,695
Bursitis, chronic (Class XVI, Inter. 149).....	21	108	109	72	32		31	1	97	5	3,802
Caisson disease (Class XVII, Inter. 74).....	1	2	3	3	1				2		79
Calcification of cartilage (Class XVI, Inter. 149).....		2	1	1	1				1		0
Calculus in bladder (Class VII, Inter. 123).....	1	11	10	11	2				8	1	611
Calculus in ureter, impacted (Class VII, Inter. 123).....	3	29	23	21	11		1		20	2	654
Calculus in urethra, impacted (Class VII, Inter. 123).....	1	1	2	3					1		66
Callositas (Class XIX, Inter. 145C).....		53	40	47	5		4	1	36		1,109
Carbuncle (Class XIII, Inter. 143).....	12	200	69	201	9				68	3	2,929
Carcinoma (Class XXIII, Inter. 39-45).....	2	20	24	4	9	10	4		18	1	1,280
Cardiospasm (Class III, Inter. 103).....		4	3	2	1		1		3		108
Caries of tooth (Class III, Inter. 99A).....	10	124	90	102	18		26		76	2	2,566
Carrier, diphtheria bacillus (Class XXI, Inter. 9b).....	22	290	107	279	55				90	4	7,491
Carrier, meningococcus (Class XXI, Inter. 61a).....	25	27	18	46	3				19	2	877
Carrier, typhoid bacillus (Class XXI, Inter. 1a).....			1	1							57
Cataract (Class VI, Inter. 75C).....	4	23	35	7	5		26		23	1	1,594
Cellulitis (Class XIII, Inter. 144).....	143	2,630	810	2,682	147	1	12	3	684	54	41,372
Cerebro-spinal fever (Class VIII, Inter. 61a).....	75	105	132	89	71	31	39		75	7	10,660
Cerumen, accumulation of (Class V, Inter. 76).....		6	2	7					1		17
Chalazion (Class VI, Inter. 75C).....	1	38	21	41					19		419
Chancroid (Class XII, Inter. 38A).....	179	7,219	2,813	7,563	714		2	12	1,772	118	67,531
Chancroid of lymph node (Class XII, Inter. 38A).....	46	800	781	948	138		2		500	39	23,487
Chicken pox (Class VIII, Inter. 19).....	7	271	166	240	48				141	15	5,833
Chilblain (Class XIX, Inter. 145C).....	3	5	7	6	3		2		4		245
Chloasma (Class XIX, Inter. 145C).....		1	2	1	1				1		11
Cholangitis, acute (Class III, Inter. 115).....	28	511	216	498	60	1		1	175	20	9,963
Cholangitis, chronic (Class III, Inter. 115).....	1	17	17	20	4				11		661
Cholecystitis, acute (Class III, Inter. 115).....	15	144	107	142	35	1	1		83	4	3,931
Cholecystitis, chronic (Class III, Inter. 115).....	6	40	55	27	20	2	7		42	3	2,579
Cholelithiasis (Class III, Inter. 114).....	6	25	23	22	9		1	1	20	1	942
Chondritis (Class XVI, Inter. 149).....	2	2	1	2	1		2				114
Chondroma (Class XXIII, Inter. 46).....		3	7	2			2		6		118
Chorea (Class XVII, Inter. 74).....	6	39	46	12	13	1	23		39	2	2,061
Chorea, chronic progressive (Class XVII, Inter. 74).....	1	1	2		1		1		2		138
Choroiditis (Class VI, Inter. 75C).....	5	37	44	13	6		25		38	4	1,902
Cicatricial contraction (Class XXI, Inter. 145C).....	7	97	106	51	14		59		82	4	3,089
Clestrix of skin (Class XIX, Inter. 145C).....	2	58	49	32	11		19		45	2	1,567
Carbosis of liver, atrophic (Class III, Inter. 113).....		5	2	1		2	2		2		204

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>DISEASES—Continued.</b>											
Cirrhosis of liver, hypertrophic (Class III, Inter. 113).....		6	4	3	1		2		4		208
Clavus (Class XIX, Inter. 145C).....	2	28	9	25	5		2		6	1	209
Colitis, acute (Class III, Inter. 105B).....	5	125	34	120	16				27	1	1,811
Colitis, chronic (Class III, Inter. 105B).....	4	20	31	22	8		2		23		971
Color blindness (Class VI, Inter. 75C).....	2	61	13	1	2		71		2		305
Comedo (Class XIX, Inter. 145C).....		2	2	2	1				1		5
Congestion of kidney (Class VII, Inter. 122).....		3	3	3	1				2		129
Congestion of lung, acute (Class XVIII, Inter. 94).....		9	2	8	1				2		83
Conjunctivitis, acute (Class VI, Inter. 75A).....	24	662	212	635	80			2	174	7	6,585
Conjunctivitis, chronic (Class VI, Inter. 75A).....	15	100	114	93	25		13	1	93	4	2,963
Conjunctivitis, phlyctenular (Class VI, Inter. 75A).....		8	5	5	2		1		5		132
Constipation (Class III, Inter. 110B).....	20	1,085	297	1,089	139		12	2	164	6	6,994
Constitutional inferiority (mental) (Class XV, Inter. 68).....	53	768	772	66	206		647	6	629	39	21,720
Constitutional psychopathic state (Class XV, Inter. 68).....	26	163	255	27	85		105	4	209	14	7,987
Contracture of joint (Class XVI, Inter. 147).....		16	19	4	3		11	1	15	1	535
Contracture of (muscle, fascia, tendon, or sheath) (Class XVI, Inter. 149).....	6	69	72	50	17		25		53	2	1,932
Cornu (Class XIX, Inter. 145C).....		6	2	6	1				1		17
Coxa vara (Class XVI, Inter. 147).....		1			1		1				22
Cramp of any muscle (Class VI, Inter. 75C).....		8		4			1				49
Cramp of muscle (Class XVI, Inter. 149).....	2	30	4	30	2				4		161
Curvature of spine (Class XVI, Inter. 38C).....	7	38	47	10	9		31		41	1	1,700
Cyellitis (Class VI, Inter. 75C).....		4	1	2	1		1		1		76
Cysticercus, unqualified (Class XXII, Inter. 107).....		2	2	2					2		139
Cystitis, acute (nonvenereal) (Class VII, Inter. 124).....	13	187	85	134	49		2		67	3	3,367
Cystitis, chronic (nonvenereal) (Class VII, Inter. 124).....	11	65	78	57	31		10		51	5	2,618
Cyst of brain (Class XVII, Inter. 74).....		1		1							36
Cyst of kidney (Class VII, Inter. 122).....		1		1							7
Cystoma (Class XXIII, Inter. 46).....	7	93	62	92	16	1	1		47	5	2,598
Dacryoadenitis (Class VI, Inter. 75C).....	1			1							4
Dacryocystitis (Class VI, Inter. 75C).....	5	30	30	27	8		3	1	24	2	1,322
Deafness (Class V, Inter. 76).....	11	98	83	33	29		58		60	3	2,498
Deformity of bladder, acquired (Class VII, Inter. 124).....		1					1				19
Deformity of nose, acquired (Class XVIII, Inter. 86).....	2	30	30	30	5		1		26		952
Deformity of penis, acquired (Class VII, Inter. 127).....		3	3	2			1		3		144
Deformity of stomach, acquired (Class III, Inter. 103).....		1			1						46
Deformity of urethra, acquired (Class VII, Inter. 125).....		3		2	1						31
Dementia, paralytica (Class XV, Inter. 67).....	17	34	80	2	15	5	18		68	28	8,933
Dementia, præcox (Class XV, Inter. 68).....	118	320	850	23	164		343	11	683	64	40,716
Dysgue (Class X, Inter. 19).....	6	452	188	442	35			1	145	3	3,236
Dentition (Class XXI, Inter. 189A).....		35	17	9			28		15		286
Dermatitis, unqualified (Class XIX, Inter. 145C).....	22	332	127	308	50	1	7		106	8	5,794
Dermatitis, venenata (Class XIX, Inter. 145C).....	3	173	48	177	12				33	2	1,900
Detachment of choroid (Class VI, Inter. 75C).....		2					2				15
Detachment of retina (Class VI, Inter. 75C).....		15	18	5	2		9		14	3	669

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

Diagnoses.	Rem.	A.	R.A.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>DISEASES—Continued.</b>											
Deviation of nasal septum (Class XVIII, Inter. 86).....	138	1,529	1,264	1,538	263		6	2	1,082	40	33,923
Diabetes insipidus (Class XXI, Inter. 55).....		5	3	3	1		3		1		341
Diabetes mellitus (Class XXI, Inter. 50).....	13	38	74	28	10	4	14	1	58	10	3,872
Diagnosis undetermined (Class XXI, Inter. 189A).....		8						7		1	161
Dilatation, acute cardiac (Class II, Inter. 79C).....	4	10	6	3	7	5			4	1	361
Dilatation, chronic cardiac (Class II, Inter. 79C).....	2	2	2	1	1		2		2		57
Dilatation of stomach, acute (Class III, Inter. 103).....	1		1	1	1						5
Dilatation of stomach, chronic (Class III, Inter. 103).....		2	2	1	1		1		1		65
Dysentery (Class VIII, Inter. 9).....	56	831	495	688	277	18		1	380	18	24,806
Dysenteritis (Class III, Inter. 110B).....		1					1				28
Dysenteritis (Class III, Inter. 105B).....	5	29	13	28	6				12	1	473
Dysentery, bacillary (Class IX, Inter. 14A).....	7	12	1	15	2	1			2		277
Dysentery, enteric (Class IX, Inter. 14C).....	15	48	54	59	11		7		36	4	3,279
Dysentery, unclassified (Class XIII, Inter. 14D).....	57	262	138	290	34		1		128	4	5,118
Dryidrosis (Class XIX, Inter. 145C).....	2	7	2	8	1				2		193
Dystrophy, progressive muscular (Class XVII, Inter. 63).....		7	7	2	3		2		7		365
Ecthyma (Class XIX, Inter. 145C).....		6		6							168
Ectropion (Class VI, Inter. 75C).....		1	2	2					1		179
Eczema (Class XIX, Inter. 145C).....	37	312	254	316	58		24		190	15	9,906
Edema of glottis (Class XVIII, Inter. 87).....		2	1	2					1		22
Edema of lung (Class XVIII, Inter. 94).....		2		1	1						3
Elongation of uvula (Class III, Inter. 100).....		2	3	1	2				2		17
Embolism (Class II, Inter. 82).....	3	8	8	1	9	3	2		4		259
Emphysema, pulmonary (Class XVII, Inter. 97).....		3	4		5				2		82
Encephalitis, acute (Class XVII, Inter. 60).....		14	17	4	7	3			12	5	895
Encephalitis, epidemic (lethargic) (Class XIII, Inter. 19).....		7	10	3	4	2	2		5	1	293
Endocarditis, acute (Class II, Inter. 78).....	18	86	66	41	62	3	3		58	3	3,629
Endocarditis, chronic (Class II, Inter. 79B).....	48	242	222	82	76	3	163	1	182	5	9,241
Enlargement of prostate (Class VII, Inter. 126).....		2	2	2	1				1		14
Enteritis, acute (Class III, Inter. 105B).....	112	1,115	166	1,164	76				147	6	6,950
Enteritis, chronic (Class III, Inter. 105B).....	3	48	61	50	3		2		54	3	2,309
Enterocolitis (Class III, Inter. 105B).....	38	90	53	117	8		1		52	3	2,863
Entropion (Class VI, Inter. 75C).....		1					1				6
Epididymitis, acute (nonvenereal) (Class VII, Inter. 127).....	15	280	141	260	44			1	126	5	5,081
Epididymitis, chronic (nonvenereal) (Class VII, Inter. 127).....	2	36	40	32	12		1		33		962
Epilepsy (Class XVII, Inter. 69).....	48	438	493	80	114	1	344	1	418	21	14,311
Epilepsy, Jacksonian (Class XVII, Inter. 74).....	3	1	10		2		8		4		269
Ephphora (Class VI, Inter. 75C).....		7	4	2	1		4		4		229
Epistaxis (Class XVIII, Inter. 85).....	2	31	14	30	6				11		288
Epithelioma (Class XXIII, Inter. 39-45).....	1	9	12	7	4				11		499
Erysipelas (Class XIII, Inter. 18).....	8	126	48	97	34	1			44	6	3,053
Erysipeloid (Class XXII, Inter. 25B).....		2		2							8
Erythema multiforme (Class XIX, Inter. 145C).....	2	29	12	29	6				7	1	384
Erythema nodosum (Class XIX, Inter. 145C).....	2	16	4	18	2				2		273
Erythema scarlatiniforme (Class XIX, Inter. 145C).....		7	2	5	2				2		52

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>DISEASES—Continued.</b>											
Erythema simplex (Class XIX, Inter. 145C).....		18	5	19	2				2		18
Esophagitis (Class III, Inter. 101).....		1		1							
Eustachian salpingitis, acute (Class V, Inter. 76).....		12	6	8	4				5	1	14
Eustachian salpingitis, chronic (Class V, Inter. 76).....	2	23	22	14	6		8		19		34
Exophthalmic goiter (Class IV, Inter. 51).....	6	71	65	21	20	1	50		46	4	3,102
Fatty heart (Class II, Inter. 79C).....		4				3	1				12
Favus (Class XXII, Inter. 25B).....		1		1							
Fermentation, gastric (Class III, Inter. 103).....	6	59	14	62	4		2		11		24
Fermentation, intestinal (Class III, Inter. 105B).....	3	94	24	95	10		1		14	1	23
Fever of unknown cause (Class XIII, Inter. 189A).....	11	254	83	218	47				82	1	2,212
Fibroma (Class XIII, Inter. 46).....	1	32	30	31	8		1		21	2	1,312
Filariasis (Class X, Inter. 19).....		11	1	12							6
Fissure of anus (Class III, Inter. 110A).....	2	37	23	34	7				21		78
Fissure of skin (Class XIX, Inter. 145C).....	2	7		9							
Fistula, fecal (Class III, Inter. 110A).....	2	11	11	6	4				10	4	64
Fistula in ano (Class III, Inter. 110A).....	22	163	184	155	43		10	2	149	10	7,462
Fistula of lachrymal sac (Class VI, Inter. 75C).....		1	2	1	1				1		2
Fistula of larynx (Class XVIII, Inter. 87).....		1	4	2					3		2
Fistula of salivary (gland or duct) (Class III, Inter. 99B).....		2	2	1			1		2		2
Fistula of trachea (Class XVIII, Inter. 98).....		1	1		1				1		1
Fistula of urethra (Class VII, Inter. 125).....	2	9	6	8	2		2		4	1	36
Folliculitis decalvans (Class XIX, Inter. 145C).....	1	12	6	11	3				4	1	42
Foreign body in bladder (Class VII, Inter. 124).....		1	2	1	1				1		
Foreign body in esophagus (Class III, Inter. 101).....		1	2	2					1		
Foreign body in intestines (Class III, Inter. 110B).....		1	4	2	1				2		
Foreign body in stomach (Class III, Inter. 103).....		3	4	3	1			1	2		6
Foreign body in ureter (Class VII, Inter. 122).....		3	4	1	2				4		27
Foreign body in urethra (Class VII, Inter. 125).....			1	1							2
Functional derangement of liver (Class III, Inter. 115).....	3	19	5	19	2				6		23
Furunculosis (Class XIII, Inter. 143).....	48	1,213	363	1,209	73			1	260	21	15,492
Ganglion (Class XVI, Inter. 149).....	2	18	9	19	3				7		25
Gangrene (Class XXI, Inter. 142).....	1	7	3	4	3				2	2	42
Gangrene, infective (Class XIII, Inter. 142).....		2	1	1	1				1		6
Gangrene of lung (Class XVIII, Inter. 95).....		2		1	1						12
Gastritis, acute catarrhal (Class III, Inter. 103).....	41	1,139	251	1,150	123				150	8	7,792
Gastritis, chronic catarrhal (Class III, Inter. 103).....	69	380	505	336	193		68		344	13	14,371
Gastritis, acute phlegmonous (Class III, Inter. 103).....	3	53	7	51	7				5		364
Gastroduodenitis (Class III, Inter. 105B).....	2	77	36	78	13		2		21	1	1,073
Gastroenteritis (Class III, Inter. 105B).....	114	1,742	413	1,788	152	1	7	1	301	19	13,331
Gastroptosis (Class III, Inter. 103).....	7	34	39	19	14		19		27	1	1,511
Genu recurvatum (Class XVI, Inter. 147).....		1	2		1		1		1		45
Genu valgum (Class XVI, Inter. 147).....		1					1				2
German measles (Class VIII, Inter. 19).....	12	133	65	127	20				63		1,992
Gingivitis (Class III, Inter. 99A).....	6	76	51	78	15		3		36	1	1,723

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>DISEASES—Continued.</b>											
Glancoma, acute (Class VI, Inter. 75C).....	1	3	3	4	1				2		71
Glancoma, chronic (Class VI, Inter. 75C).....		5	5	1	1		3	1	4		139
Glioma (Class XXIII, Inter. 46).....		8	4	2	1	3	2		3	1	364
Glossitis, acute (Class III, Inter. 99B).....		7	2	6	1				2		30
Glossitis, chronic (Class III, Inter. 99B).....		2	2	2	1				1		83
Glycosuria (Class XXI, Inter. 50).....		15	12	14	1		2		10		443
Goiter (Class IV, Inter. 88).....	24	195	200	97	33		102		175	12	8,474
Gonococcus infection of conjunctiva (Class XII, Inter. 38B).....	3	26	32	24	11		3		22		847
Gonococcus infection of joints (Class XII, Inter. 38B).....	46	224	278	156	65		66	3	284	24	12,662
Gonococcus infection of lymph node (Class XII, Inter. 38B).....	9	134	111	124	38		1	1	76	4	3,541
Gonococcus infection of urethra (Class XII, Inter. 38B).....	478	18,724	9,737	21,032	1,130		406	75	5,921	372	241,016
Gonococcus infection, unqualified (Class XII, Inter. 38B).....	87	1,304	1,285	1,529	203	1	9	8	804	72	39,978
Gout, acute (Class XXI, Inter. 49C).....		7		7							33
Gout, chronic (Class XXI, Inter. 49C).....		4	1	3			1		1		133
Hallux valgus (Class XVI, Inter. 149).....	5	32	32	28	4		10		25	2	1,620
Hallux varus (Class XVI, Inter. 149).....		3	2	1	1				3		165
Hammer toe (Class XVI, Inter. 149).....	18	91	78	83	8		19		76	1	3,569
Hay fever (Class XVIII, Inter. 98).....		12	7	10	2				7		196
Headache (Class XXI, Inter. 193A).....	7	331	21	332	12		1		12	2	949
Heart block (Class II, Inter. 85).....	2	9	12	1	6		6		10		405
Hematemesis (Class III, Inter. 103).....		3	1	3					1		19
Hematocoele of spermatic cord (Class VII, Inter. 127).....		4	1	2	1				2		43
Hematomyelia (Class XVII, Inter. 63).....		3	1	2			1		1		237
Hematuria, renal (Class VII, Inter. 123).....	4	31	40	28	16		1		28	2	1,579
Hemianopsia (Class VI, Inter. 75C).....	1		2		1		1		1		76
Hemiplegia, old (Class XVII, Inter. 63).....	2	16	23	4	4		14		17	3	1,026
Hemoglobinuria (Class VII, Inter. 123).....		4	3	3	1				3		94
Hemoglobinuric fever (Class XIII, Inter. 19).....		1	1	1					1		18
Hemophilia (Class I, Inter. 98).....	1	4	5	3	2	1	1		2	1	186
Hemoptysis (Class XVIII, Inter. 98).....	4	18	16	6	15		3		14		477
Hemorrhage, epidural (Class XVII, Inter. 64).....		1		1							5
Hemorrhage, intestinal (Class III, Inter. 110B).....		1	1	1					1		52
Hemorrhage into cerebellum (Class XVII, Inter. 64).....		2	3	2		1	1		1		124
Hemorrhage into cerebrum (Class XVII, Inter. 64).....	3	13	21	3	9	4	4		14	3	827
Hemorrhage into pons (Class XVII, Inter. 64).....		1	2		1				1	1	159
Hemorrhage into retina (Class VI, Inter. 75C).....		6	10	6	1		3		5		367
Hemorrhage, subdural (Class XVII, Inter. 64).....		3	5	1	1	1	1		4		102
Hemorrhage under conjunctiva, nontraumatic (Class VI, Inter. 75C).....		5	2	4	1				2		35
Hemorrhoids (Class III, Inter. 83).....	175	1,369	1,267	1,409	100		4	3	1,174	51	36,351
Hemothorax (Class XVIII, Inter. 93).....		3	4	1	2				4		125
Hernia, epigastric (Class XX, Inter. 109).....	3	18	17	15	7		2		12	2	710
Hernia, femoral (Class XX, Inter. 109).....	3	16	12	13	7			1	10		779

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>DISEASES—Continued.</b>											
Hernia, inguinal (Class XX, Inter. 109).....	394	2,078	2,478	2,082	326	2	185	9	2,249	97	103,034
Hernia, internal (Class XX, Inter. 109).....	1	2	2	1	1				2	1	155
Hernia, lumbar (Class XX, Inter. 109).....		4	6	3	1		1		5		148
Hernia of (muscle, fascia, tendon, or sheath) (Class XVI, Inter. 149).....	2	19	17	12	2		8		16		855
Hernia, umbilical (Class XX, Inter. 109).....	2	16	14	16	4		1		11		502
Hernia, ventral (Class XX, Inter. 109).....	25	100	113	89	28		25		93	3	5,043
Herpes (Class XIX, Inter. 145C).....	2	123	27	113	18				20	1	1,551
Hiccough (Class XVII, Inter. 74).....		17	8	17	1				7		187
Hodgkin's disease (Class XIV, Inter. 53A).....	1		3			2	1				343
Hordeolum (Class VI, Inter. 75C).....	2	83	9	83	3				7	1	348
Hydrocele of spermatic cord (Class VII, Inter. 127).....	6	55	56	59	14				43	1	1,624
Hydrocele of tunica vaginalis (Class VII, Inter. 127).....	10	146	125	138	38		2	1	97	5	4,128
Hydrocephalus, acquired (Class XVII, Inter. 74).....			1	3	2				2		56
Hydronephrosis (Class VII, Inter. 122).....	2	5	15	3	6		4		9		800
Hyperesthesia of retina (Class VI, Inter. 75C).....		6	10	3	3		3		7		235
Hyperchylia, gastric (Class III, Inter. 103).....	5	29	49	26	18		4	1	32	2	1,359
Hyperemia of conjunctiva (Class VI, Inter. 75C).....		5	4	3	2				4		34
Hyperidrosis (Class XIX, Inter. 145C).....		6	5	3	1		1		4	2	80
Hypermetropia (Class VI, Inter. 75C).....	11	348	104	306	38		48	1	66	4	3,543
Hypernephroma (Class XXIII, Inter. 45E).....			2	1					1		66
Hypertrophy of bone (Class XVI, Inter. 146).....	6	75	85	58	27		7		69	5	2,296
Hypertrophy of heart (Class II, Inter. 79C).....	2	15	11	4	7		7		9	1	607
Hypertrophy of mammary gland (Class XXI, Inter. 133).....	3	6	8	9	3				5		241
Hypertrophy of tonsil (Class III, Inter. 100).....	106	2,331	1,189	2,292	215		2	6	1,075	3	636,405
Hypochlorhydria (Class III, Inter. 103).....	9	48	54	43	19		9		38	2	1,797
Hypochondriasis (Class XVII, Inter. 68).....		9	9	5	3		1		9		365
Hysteria (Class XVII, Inter. 73A).....	32	325	305	183	111		148	2	208	10	9,922
Ichthyosis (Class XIX, Inter. 145C).....	3	6	6	5	1		4		5		199
Idiocy (Class XV, Inter. 74).....		1	2		2				1		8
Imbecility (Class XV, Inter. 74).....	8	134	86	3	16		126		79	2	3,677
Impacted feces (Class III, Inter. 110B).....		10	5	10	2				3		67
Impetigo contagiosa (Class XIX, Inter. 145C).....	9	179	74	172	20			1	65	4	2,423
Impetigo herpetiformis (Class XIX, Inter. 145C).....		11	3	6	3				5		73
Impetigo simplex (Class XIX, Inter. 145C).....	1	24	3	25	1				2		288
Incontinence of urine (Class VII, Inter. 124).....	26	183	219	95	74		60		186	13	6,127
Inflammation of salivary gland (Class III, Inter. 99B).....	2	16	2	18					2		166
Inflammation of spermatic cord (Class VII, Inter. 127).....		2	8	5	1		1		3		89
Influenza (Class VIII, Inter. 10).....	2,020	20,366	8,207	20,808	2,748	558	2	11	6,412	54	254,504
Ingrowing nail (Class XIX, Inter. 145C).....	19	602	149	618	18				134	4	7,908
Insomnia (Class XXI, Inter. 189A).....			7	4	4	3		1		3	86
Insufficiency of the ocular muscle (Class VI, Inter. 75C).....	6	59	68	30	21		25		52		51,936
Intertrigo (Class XIX, Inter. 145C).....		13		13							97
Iridochoroiditis (Class VI, Inter. 75C).....		2	7	2	1		2		3	1	351

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

Diagnoses.	Rem.	A.	R.A.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>DISEASES—Continued.</b>											
Orkocyclitis (Class VI. Inter. 75C).....		8	7	3	3		2		6	1	421
Otitis (Class VI. Inter. 75C).....	16	147	120	120	43		12		108	5	4,812
Oundice, acute infective (Well's disease, (Class VIII. Inter. 111).....	11	20	24	28	8				19		915
Ophthalmitis (Class VI. Inter. 75C).....	10	67	69	55	8		19	1	59	4	2,793
Ophthalmitis, phlyctenular (Class VI. Inter. 75C).....	2	8	10	8	4				8		318
Ophthalmitis (Class VI. Inter. 75C).....	2	1		2			1				58
Otitis (Class XIX. Inter. 145C).....		4	2	2					3	1	92
Otitis, acute (Class XVIII. Inter. 87).....	32	528	120	548	30			1	100	1	4,956
Otitis, chronic (Class XVIII. Inter. 87).....	14	56	83	43	17		18		74	1	2,722
Oropharynx (Class XIII. Inter. 17).....	3				1					2	730
Osteoma (Class I. Inter. 53C).....	2	10	15	4	5	4	2		12		427
Osteoderma (Class XIX. Inter. 145C).....		1					1				12
Osteoma (Class VI. Inter. 75C).....	3	22	13	4	4		18	1	10	1	504
Osteoma, planus (Class XIX. Inter. 145C).....	1	7	3	8	1				2		143
Osteoma, ruber (Class XIX. Inter. 175C).....		1	1	2							86
Osteoma (Class XXIII. Inter. 46).....	4	54	44	52	16	1	1		32		1,096
Osteomotor ataxia (Class XVII. Inter. 62).....	6	20	27	14	12		6		17	4	2,261
Osteomyelitis in joint (Class XVI. Inter. 147).....	7	38	69	30	13		19	1	51		2,541
Osteomyelitis of substance (bone or cartilage) (Class XVI. Inter. 146).....	2	35	31	10	4		26		27	1	1,245
Osteomyelitis, erythematous (Class XIX. Inter. 145C).....		2	6	3			1		4		331
Osteomyelitis, acute (Class XIV. Inter. 84).....	57	1,007	593	956	175			1	475	50	26,732
Osteomyelitis chronic (Class XIV. Inter. 84).....	19	127	138	123	44		5	1	106	6	5,901
Osteomyelitis (Class XIV. Inter. 84).....		2		2							32
Osteophangioma (Class XXIII. Inter. 46).....		3	3	2	1		1		2		102
Osteophangitis (Class XIV. Inter. 94).....	7	196	95	188	28		2	2	72	6	3,412
Osteophoma (Class XXIII. Inter. 46).....		3	5	3	2		1		2		113
Malaria (Class X. Inter. 4).....	91	2,581	1,499	3,008	257	3	4	2	794	103	34,884
Malignant formations, congenital (Class XXI. Inter. 150).....	10	77	67	43	18		35		54	4	2,524
Malignant formations (Class XXI. Inter. 150B).....	2	32	22	30	13			1	11	1	371
Mallet finger (Class XVI. Inter. 148).....		1	2	1					2		26
Malnutrition (Class XXI. Inter. 150A).....		22	10	5	2		17		8		383
Maxillitis, acute (Class V. Inter. 146).....	48	189	139	165	77	7	4	2	112	9	10,807
Maxillitis, chronic (Class V. Inter. 146).....	6	115	119	80	24		49		98	14	7,000
Maxillary sinusitis (Class VII. Inter. 74).....		6	4	2	3		1		4		141
Measles (Class VIII. Inter. 6).....	152	1,078	689	1,023	208	18		2	628	40	24,902
Melanchoia, involutional (Class XV. Inter. 68).....	2	10	19	4	12		1		13	1	385
Melanoderma (Class XIX. Inter. 145C).....		1		1							6
Melancholia (Class XVII. Inter. 61).....	3	4	8	3	4		2		6		378
Meningitis, cerebral (Class XVII. Inter. 61).....	6	10	13	2	11	1	1		13	1	620
Meningitis, cerebrospinal (Class XIII. Inter. 61).....	23	70	82	27	59	19	9		54	7	4,283
Meningitis, spinal (Class XVII. Inter. 61).....	3	2	11	6	2		1		7		317
Metatarsalgia (Class XVI. Inter. 146).....	1	13	19	6	4		4	1	17	1	416
Migraine (Class XXI. Inter. 74).....	5	228	28	223	10		8		20		1,367
Milia (Class XIX. Inter. 145C).....		5		5							28
Mixed benign tumor (Class XXIII. Inter. 46).....		6	4	5	2				3		212
Molluscum contagiosum (Class XIX. Inter. 145C).....		2		2							14



TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>DISEASES—Continued.</b>											
Moron (Class XV, Inter. 74).....	39	21	1	6	31	1	19	2	691		
Mumps (Class VIII, Inter. 19).....	447	5,874	3,749	5,773	358	11	3,630	306	126,888		
Myasthenia gravis (Class XVII, Inter. 63).....	1	3		1				3	13		
Mycetoma (Class XXII, Inter. 25B).....	1			1							
Myelitis, disseminated (Class XVII, Inter. 63).....	1	3	8	2			4	5	1	665	
Myelitis, transverse (Class XVII, Inter. 63).....	3	3	6	1			4	6	1	1,057	
Myiasis (Class XXII, Inter. 145C).....	3	1	3						1	49	
Myocarditis, acute (Class II, Inter. 78).....	16	77	87	55	55	2	3	64	1	3,313	
Myocarditis, chronic (Class II, Inter. 79C).....	74	336	289	135	74	4	272	206	8	13,840	
Myoma (Class XXIII, Inter. 46).....	1	1	2							75	
Myopia (Class VI, Inter. 75C).....	20	550	179	139	32		485	93		3,283	
Mycosis, acute (Class XVI, Inter. 149).....	17	281	65	289	37			35	2	3,164	
Mycosis, chronic (Class XVI, Inter. 149).....	24	71	90	49	37		26	1	70	2	3,521
Mycosis, progressive, ossifying (Class XVI, Inter. 149).....		2	3	1	2				2	44	
Mycosis, traumatic, ossifying (Class XVI, Inter. 149).....	2	3	2	2	1		2		2	56	
Myringitis, acute (Class V, Inter. 76).....		18	6	17	3				4	79	
Myringitis, chronic (Class V, Inter. 76).....		4	2	1	3				2	44	
Nausea marina (Class XXI, Inter. 180A).....	49	352	275	307	37		116		213	3	6,080
Necrosis (Class XVI, Inter. 146).....	4	22	21	19	5		4		18	1	854
Nephralgia (Class VII, Inter. 122).....	1	11	5	10	4		1		2	373	
Nephritis, acute (Class VII, Inter. 119).....	14	199	210	127	89	11	8		180	8	8,326
Nephritis, chronic interstitial (Class VII, Inter. 120).....	13	91	124	49	31	13	39	1	85	10	5,029
Nephritis, chronic parenchymatous (Class VII, Inter. 120).....	19	132	189	66	32	4	64		164	10	8,156
Nephritis, disseminated suppurative (Class VII, Inter. 122).....		6	10	3	2		2		9	309	
Nephrolithiasis (Class VII, Inter. 123).....	14	87	125	85	41	1	12		80	7	4,361
Nephroptosis (Class VII, Inter. 122).....	2	14	16	9	7		1		12	3	514
Nervous dyspepsia (Class III, Inter. 103).....	2	13	19	14	10				10	324	
Neuralgia (Class XVII, Inter. 73B).....	22	397	93	393	42		6		69	2	3,000
Neurasthenia (Class XVII, Inter. 74).....	121	714	778	527	233		263	2	554	34	27,089
Neuritis (Class XVII, Inter. 73B).....	51	350	327	236	110		92	3	266	21	14,990
Neuritis, multiple (Class XVII, Inter. 73B).....	1	21	36	13	10		8		27	1,625	
Neuritis, optic (Class VI, Inter. 75C).....	1	17	12	4	6		9		10	1	645
Neuroma (Class XXIII, Inter. 46).....		1					1				8
Neuroretinitis (Class VI, Inter. 75C).....	5	5	4	3	3		6		2	289	
Neurosis, intestinal (Class III, Inter. 110B).....	1	23	22	21	8		5		12	751	
Neurosis, occupational (Class XVII, Inter. 74).....	1	10	13	8	2		3		11	349	
Neurosis of bladder (Class VII, Inter. 124).....	15	172	127	48	23		144		93	6	4,096
Neurosis of pharynx (Class II, Inter. 100).....		3	4	1	2				4	61	
Neurosis, traumatic (Class XVII, Inter. 74).....	2	43	42	24	11		32		20	1,445	
Neurosis, war (Class XVII, Inter. 74).....		10	15		6		8		10	1	391
Nevus (Class XIX, Inter. 150).....		3	1	2					1	1	151
Night blindness (Class VI, Inter. 75C).....		3	1				1		3	166	
No disease (Class XXI, Inter. 189A).....	67	2,019	1,229	1,976	626		9	9	622	73	28,775
Nostalgia (Class XXI, Inter. 68).....		7	3	6	2				2		123
Nystagmus (Class VI, Inter. 75C).....	1	3	4		3		1		4	217	



TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>DISEASES—Continued.</b>											
osity (Class XXI, Inter. 55).....		1					1				11
struction, acute intestinal (Class III, Inter. 100).....	4	25	14	8	13	13			9		942
struction, chronic intestinal (Class III, Inter. 100).....	7	12	29	7	14	1	5		21		661
struction of portal vein (Class III, Inter. 115).....		1	1		1				1		4
odontoma (Class XXIII, Inter. 66).....		1					1				20
rychaxia (Class XIX, Inter. 145C).....		1	1	1					1		52
rychia (Class XIX, Inter. 145C).....		33	7	31	2		1		5	1	384
osity of vitreous humor (Class VI, Inter. 75C).....		14	21	6	6		9		14		607
phthalmoplegia (Class VI, In- ter. 75C).....		3	2	2	1				2		24
chitis, acute (nonvenereal) (Class VII, Inter. 127).....	26	423	146	306	61		2		128	8	5,774
chitis, chronic (nonvenereal) (Class VII, Inter. 127).....	8	59	58	48	7		14		53	3	2,375
iental sore (Class XIII, Inter. 145C).....		2	4	2					4		106
ification of cartilage, unequal- lified (Class XVI, Inter. 149).....	1	2	2	1	2		1		1		121
stetis deformans (Class XVI, Inter. 146).....	1	8	1	6	3				4		282
tearthopathy, hypertrophic (Class XXI, Inter. 36B).....	2	3	1		1		4		1		160
stoma (Class XXII, Inter. 40).....	11	65	95	49	17		26	2	74	3	3,753
stomyelitis, acute (Class XVI, Inter. 146).....	13	48	74	30	28	3			61	4	4,351
stomyelitis, chronic (Class XVI, Inter. 146).....	24	68	114	44	24		31	1	90	16	8,162
titis externa (Class V, Inter. 76) .....	3	309	125	288	43		3		96	7	3,509
titis interna, acute (Class V, Inter. 76).....	3	24	17	16	10				16	2	761
titis interna, chronic (Class V, Inter. 76).....	11	56	46	18	9		39	1	44	2	1,732
titis media, acute (Class V, Inter. 76).....	94	1,230	762	1,137	238	1	2	2	669	37	26,652
titis media, chronic (Class V, Inter. 76).....	200	1,245	1,497	790	219	1	638	1	1,222	71	47,896
tyrriasis (Class XXII, Inter. 107).....		1	1	*1					1		3
ena (Class XVIII, Inter. 86).....	1	4	8	3			2		8		153
achymeningitis, cerebral (Class XVII, Inter. 61).....	1	3	5		1	1	2		4	1	100
achymeningitis, spinal (Class XVII, Inter. 61).....	1	5	8	1	3		6		4		230
alpitiation, cardiac (Class II, Inter. 85).....	4	28	33	22	15		4		24		881
ancreatitis, acute (Class III, Inter. 118).....		1				1					
ancreatitis, chronic (Class III, Inter. 118).....		3	2		1		1		3		191
anophthalmitis (Class VI, Inter. 75C).....	1	7	3	1	1		6		3		368
apiloma (Class XXIII, Inter. 46).....	2	44	30	33	15				24	4	1,538
appataci fever (Class X, Inter. 19).....		19		19							63
alysis, acute ascending (Class XVII, Inter. 63).....			1						1		9
alysis, agitans (Class XVII, Inter. 63).....	1	1	4		1		1		4		164
alysis of nerve (Class XVII, Inter. 66).....	29	149	151	86	39		52	3	134	15	8,943
alysis of ocular muscle (Class VI, Inter. 75C).....	4	17	22	6	8		12		16	1	788
alysis of vocal cords (Class XVIII, Inter. 74).....	1	6	3	3	1		2		3	1	287
alysis, muscle, ischemic (Class XVI, Inter. 149).....	2	4	6	2	2		2	1	5		308
ramyoclonus multiplex (Class XVII, Inter. 74).....		2	1	2			1				28
ramia (Class XV, Inter. 68).....	1	4	8		4		1		6	2	126
ramonac state (Class XV, Inter. 68).....	6	6	12	2	5		4		11	2	1,193

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>DISEASES—Continued.</b>											
Paraphimosis (Class VII, Inter. 127).....	10	91	17	85	11				20	2	1,339
Paraplegia, ataxic (Class XVII, Inter. 66).....	1	3	6	2	2				4	2	21
Paratyphoid fever (Class IX, Inter. 1).....	1	13	11	11	5				9		439
Pediculosis (Class XXII, Inter. 145C).....	1	96	25	93	11				18		766
Pemphigus (Class XIX, Inter. 145C).....		12	8	12	1				7		130
Perforated nasal septum (Class XVIII, Inter. 86).....		11	10	8	2		2		9		191
Pericarditis (Class II, Inter. 77).....	9	40	39	14	26	2	9		26	2	2,794
Pericardium, adherent (Class II, Inter. 77).....		5	4	2	2		2		3		170
Perichondritis of auricle (Class V, Inter. 76).....		3	1	2	1				1		45
Periostitis, acute (Class XVI, Inter. 146).....	13	81	43	73	19		1		38	6	2,336
Periostitis, chronic (Class XVI, Inter. 146).....	10	69	95	47	30		21		74	2	2,919
Peritonitis, acute, general (Class III, Inter. 117).....	3	10	6	4	8	3			4		282
Peritonitis, acute, local (Class III, Inter. 117).....		2		1					1		6
Peritonitis, chronic, general (Class III, Inter. 117).....		1	3		1	1	1		1		74
Peritonitis, chronic, local (Class III, Inter. 117).....	1	2	6	2	1		1		5		548
Perversion of appetite (Class III, Inter. 103).....		1		1							13
Pes cavus (Class XVI, Inter. 149).....	2	32	35	13	3		30		23		926
Pes planus (Class XVI, Inter. 149).....	261	1,366	1,494	579	135		1,123	4	1,246	34	52,094
Pharyngitis, acute (Class III, Inter. 100).....	40	1,877	202	1,887	80				146	6	9,137
Pharyngitis, chronic (Class III, Inter. 100).....	3	24	19	20	11		2		13		465
Phimosis (Class VII, Inter. 127).....	29	935	187	928	46		1		168	8	9,088
Phlebitis (Class II, Inter. 83).....	27	110	80	75	23		56		61	2	4,794
Pityriasis roses (Class XIX, Inter. 145C).....		29	16	32	8				5		446
Pityriasis simplex (Class XIX, Inter. 145C).....		5	2	2	1				3	1	25
Pityriasis versicolor (Class XXII, Inter. 25B).....		9	11	9	6				5		289
Pleurisy, acute fibrinous (Class XVIII, Inter. 93).....	64	684	334	622	145		3		201	21	12,736
Pleurisy, chronic fibrinous (Class XVIII, Inter. 93).....	45	223	242	140	71		92		200	7	10,995
Pleurisy, serofibrinous (Class XVIII, Inter. 93).....	73	294	375	218	156	1	45		306	14	20,379
Pleurisy, suppurative (Class XVIII, Inter. 93).....	256	284	379	207	178	4	187	3	303	37	55,322
Pleuritic adhesions (Class XVIII, Inter. 93).....	9	71	42	36	19		34		33		1,679
Pneumonia, broncho- (Class VIII, Inter. 91).....	559	1,175	721	1,067	745	19	6	2	568	18	55,248
Pneumonia, interstitial (Class XVIII, Inter. 98).....		3	1	1			2		1		46
Pneumonia, lobar (Class VIII, Inter. 92).....	214	1,053	890	767	508	78	5		741	58	47,700
Pneumonoconiosis (Class XVIII, Inter. 93).....	1	3	2	1	1		1		3		59
Pneumothorax (Class XVIII, Inter. 93).....		2	3	1					3	1	189
Poliomyelitis, acute anterior (Class VIII, Inter. 63).....	3	4	3	1	3		2		3	1	1,004
Poliomyelitis, chronic anterior (Class XIII, Inter. 63).....	1	4	3	2	1		3		2		157
Polypus, nasal (Class XVIII, Inter. 46).....	5	54	47	56	10				39	1	1,085
Presbyopia (Class VI, Inter. 45C).....		6	4	4	2		2		2		39
Proctalgia (Class III, Inter. 110A).....		2	1	1	1				1		26
Proctitis (Class III, Inter. 110A).....		5	5	4	2				4		339
Prolapse of rectum (Class III, Inter. 110B).....	2	10	9	8			5		8		582
Prostatitis, acute (nonvenereal) (Class VII, Inter. 126).....	3	26	15	21	9				11	3	749
Prostatitis, chronic (nonvenereal) (Class VII, Inter. 126).....	7	38	30	28	10		4		21	2	1,350

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>DISEASES—Continued.</b>											
Pruritus (Class XIX, Inter. 145C)	2	12	20	19	6				9		565
Psoriasis (Class XIX, Inter. 145C)	12	90	92	81	19		25		68	1	3,990
Psychasthenia (Class XV, Inter. 68)	27	87	168	41	46		51	3	133	8	6,676
Psychoneurosis (Class XV, Inter. 68)	13	20	33	10	14		9		30	3	1,485
Psychosis, due to organic brain disease (Class XV, Inter. 74)	4	3	11		4		4		10		1,062
Psychosis, epileptic (Class XV, Inter. 69)		7	14	2	5		4		10		655
Psychosis (exhaustive, infective, and toxic) (Class XV, Inter. 68)	8	43	65	26	23		12		52	3	3,084
Psychosis, hysterical (Class XV, Inter. 73A)	13	36	76	17	17		22		68	1	2,471
Psychosis, intoxication (Class XV, Inter. 68)	2	22	18	15	13		1		13		499
Psychosis, manic depressive (Class XV, Inter. 68)	30	64	178	8	73		47	3	144	6	7,482
Psychosis, polyneuritic (Class XV, Inter. 68)	2		1		1		1		1		118
Psychosis, senile (Class XV, Inter. 154A)	1	1	2	1	1				1	1	407
Psychosis, traumatic (Class XV, Inter. 68)	3	13	23	6	10		5		18		847
Psychosis, unclassified (Class XV, Inter. 68)	14	44	86	9	46		3	2	79	5	2,366
Pterygium (Class VI, Inter. 75C)	9	112	99	110	14		4		91	1	2,689
Purpura (Class I, Inter. 55)	2	6	7	6	1				7	1	215
Purpura, hemorrhagic (Class I, Inter. 55)		8	8	2	5	2			6	1	271
Pyelitis (Class VII, Inter. 122)	12	78	103	67	38		9		71	8	3,593
Pyelonephritis (Class VII, Inter. 122)	2	17	8	8	7	1	3		6	2	811
Pylorospasm (Class III, Inter. 103)		1	2	2	1						32
Pneumothorax (Class XVIII, Inter. 93)		4	4		1				7		161
Proctitis, alveolaris (Class III, Inter. 99A)	20	139	112	112	37		33		83	6	4,317
Raynaud's disease (Class XXI, Inter. 142)	2	1	4		1		2		4		163
Redundant prepuce (Class VII, Inter. 127)	27	2,317	297	2,271	83		1		266	20	24,101
Redundant scrotum (Class VII, Inter. 127)		3		3							44
Relapsing fever (Class X, Inter. 38)		1		1							4
Retention cyst (Class XXIII, Inter. 46)	4	29	14	30	5		1		9	2	631
Retinitis (Class VI, Inter. 75C)	3	53	70	17	22		29		58		1,997
Rheumatic fever, acute (Class XIII, Inter. 47)	107	924	702	784	283	2	5	2	589	68	33,724
Rheumatic fever, subacute (Class XIII, Inter. 47)	31	208	165	201	62		12		122	7	7,541
Rheumatism, chronic articular (Class XXI, Inter. 48B)	108	734	608	549	198		243		577	33	33,412
Rheumatism, muscular (Class XXI, Inter. 149)	123	1,088	587	1,058	220		65	2	435	18	21,832
Rhinitis, acute (Class XVIII, Inter. 86)	25	1,794	105	1,825	47				46	6	6,679
Rhinitis, atrophic (Class XVIII, Inter. 86)	7	37	37	27	5		19		25	5	1,318
Rhinitis, hypertrophic (Class XVIII, Inter. 86)	4	88	74	78	22		2	2	61	1	1,406
Rumination (Class III, Inter. 103)		1	2	1			1		1		63
Rupture of spleen, spontaneous (Class IV, Inter. 116)	1				1						5
Sarcoma (Class XXIII, Inter. 39-45)	3	19	21	5	7	9	4	1	13	4	1,437
Scabies (Class XXII, Inter. 145B)	126	2,566	923	2,539	167			8	821	80	33,175
Scarlet fever (Class VIII, Inter. 7)	37	722	467	591	144	11		4	79	79	28,360
Schistosomiasis, intestinal (Class XXII, Inter. 107)		5	2				4		3		75
Scleritis (Class VI, Inter. 75C)		6	4	5	2				2	1	143
Sclerodermis, disseminated (Class XVII, Inter. 63)		10	8	3	5		6		4		391
Sclerodermis, lateral (Class XVII, Inter. 63)	1	2	2	1			2		2		107

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>DISEASES—Continued.</b>											
Seborrhea (Class XIX, Inter. 145C).....		4	5	4	1				4		22
Seminal emissions (Class VII, Inter. 127).....		3	1	3	1						113
Senility (Class XXI, Inter. 154B).....		4	2		1					1	105
Septicemia (Class XIII, Inter. 20).....	3	61	34	24	28	13		2	29	4	1,039
Shock (Class XXI, Inter. 189A).....	1	8	4	8	2				3		59
Sinus (Class XXI, Inter. 145C).....	10	39	51	39	14			3	43	2	3,169
Sinusitis, ethmoidal (Class XVIII, Inter. 146).....	12	78	61	64	19	1	20		43	4	3,033
Sinusitis, frontal (Class XVIII, Inter. 146).....	37	476	367	432	101		32	1	308	11	11,408
Sinusitis, maxillary (Class XVIII, Inter. 146).....	20	153	126	143	42		8		100	6	4,132
Sinusitis, sphenoidal (Class XVIII, Inter. 146).....		4		3					1		110
Smallpox (Class VIII, Inter. 5).....	1	30	17	24	9	2	1		11	2	1,139
Snow blindness (Class VI, Inter. 75C).....		1							1		11
Somnambulism (Class XVII, Inter. 74).....	1	11	14	5			8		12	1	611
Spasm habit (Class XVII, Inter. 74).....		2	1	1	1				1		9
Spermatocele (Class VII, Inter. 127).....		2		2							15
Spermatorrhea (Class VII, Inter. 127).....		5	3	4	2				2		41
Splanchnoptosis (Class III, Inter. 110B).....	2	8	10	5	2		6		7		269
Splenitis, acute (Class IV, Inter. 116).....		3	4	1	2				3	1	39
Splenitis, chronic interstitial (Class IV, Inter. 116).....	2	2	6	2			2		5	1	546
Sprue (Class III, Inter. 110B).....		1		1							8
Spur on nasal septum (Class XVIII, Inter. 86).....	1	21	20	19	5				18		319
Stammering (Class XVII, Inter. 74).....		29	18	1	3		26		15	2	728
Status lymphaticus (Class XVI, Inter. 84).....		1				1					
Stenosis of larynx (Class XVIII, Inter. 87).....		1	1	2							25
Stenosis of nasal duct (Class VI, Inter. 75C).....		9	5	4	1		4		5		175
Stenosis of punctum lacrimale (Class VI, Inter. 75C).....		5	3	3			1		3	1	160
Stenosis of pylorus (Class III, Inter. 103).....	1	1	1	1			1		1		84
Stomatitis (Class III, Inter. 39B).....		55	25	57	5				17	1	789
Stomatitis, gangrenous (Class III, Inter. 142).....		3		3							45
Stricture of esophagus (Class III, Inter. 101).....		4	3	2	1		1		3		102
Stricture of intestine (Class III, Inter. 109).....		2	3	1	1				3		79
Stricture of rectum (Class III, Inter. 110B).....	1	1	2	2	1				1		10
Stricture of ureter (Class VII, Inter. 122).....		3	2	1	1		1		2		89
Stricture of urethra (Class VII, Inter. 127).....	16	91	106	92	33		2	2	79	5	2,980
Strongyloidosis, intestinal (Class XXII, Inter. 107).....		3		3							57
Stuttering (Class XVII, Inter. 74).....		4	1				5				26
Sudamina (Class XIX, Inter. 145C).....		1		1							8
Suppression of urine (Class VII, Inter. 124).....		6	4	4	4				2		111
Synechia (Class VI, Inter. 75C).....	1	7	5	2	3		4		4		138
Syphilis (Class XII, Inter. 37).....	508	4,920	5,564	5,685	1,111	10	290	27	3,640	289	169,359
Syringomyelia (Class XVII, Inter. 65).....		1	2		1		1		1		50
Tachycardia (Class II, Inter. 85).....	28	214	219	157	77		40	1	179	7	7,452
Talipes (Class XVI, Inter. 149).....	2	12	8	4	3		8		7		184
Teniasis (Class XXII, Inter. 107).....	1	72	123	106	12				76	2	1,042
Tenocynovitis (Class XVI, Inter. 149).....	13	105	75	97	23		9		60	4	2,601
Tetanus (Class XXIII, Inter. 46).....		6	7	5	3	1			4		539
Tetanus (Class XXIII, Inter. 24).....		3	4	1		2			4		88
Tetany (Class XXI, Inter. 74).....		1					1				19



TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

Diagnoses.	Rem.	A.	R.A.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>DISEASES—Continued.</b>											
Thrombosis (Class II, Inter. 82)...	5	17	21	9	9	2	8		15		1,117
Thyroiditis, acute (Class IV, Inter. 88).....	1	8	10	4	6		1		8		335
Thyroiditis, chronic (Class IV, Inter. 88).....	6	24	44	10	12		28		29		1,605
Tic, convulsive (Class XVII, Inter. 74).....		4	5	1	1		3		4		158
Tic, coordinated (Class XVII, Inter. 74).....		1					1				18
Tic, psychical (Class XVII, Inter. 74).....		2					2				8
Tonsillitis, acute follicular (Class XVIII, Inter. 100).....	395	20,908	4,086	20,415	1,307	5	1	12	3,342	307	139,040
Tonsillitis, chronic (Class XVIII, Inter. 100).....	115	1,998	1,168	1,981	239	1	2	4	1,018	31	34,330
Torsion of omentum (Class III, Inter. 118).....		3	2	1	1		1		2		55
Torsion of spermatic cord, non-traumatic (Class VII, Inter. 127).....	1	3	4	4	2				2		64
Tracheitis (Class XVIII, Inter. 98).....		27	1	25	2				1		201
Tracheocele (Class XVIII, Inter. 98).....		4		3					1		10
Trachoma (Class VI, Inter. 75B).....	6	43	60	13	11		26		55	4	2,504
French fever (Class X, Inter. 19).....		1		1							17
Trichiniasis (Class XXII, Inter. 107).....		3		3							31
Trichophytosis (Class XXII, Inter. 145A).....	15	420	145	421	42				111	6	4,936
Trichostrongylus instabilis (Class XXII, Inter. 107).....		1		1							
Trichuriasis (Class XXII, Inter. 107).....		5	7	4	4				4		65
Trichuris trichiura (Class XXII, Inter. 107).....		4	6	2	4				3	1	143
Tuberculosis, abdominal (Class XI, Inter. 31).....	5	6	28		8		9		22		1,625
Tuberculosis, acute broncho-pneumonia (Class XI, Inter. 29).....	5	21	32		14	3	8		28	5	1,658
Tuberculosis, acute, general (Class XI, Inter. 29).....	1	9	20		10	3	1		16		784
Tuberculosis, acute pneumonic (Class XI, Inter. 29).....	34	46	64	6	35	8	22		56	17	8,577
Tuberculosis, acute pulmonary miliary (Class XI, Inter. 29).....	18	45	64	2	26	11	16		60	12	4,839
Tuberculosis, chronic pulmonary (Class XI, Inter. 28).....	735	1,130	2,165	118	375	132	989	8	1,856	552	246,612
Tuberculosis of bronchus (Class XI, Inter. 28).....	2	3	4		4				4	1	461
Tuberculosis of joint (Class XI, Inter. 33).....	5	22	27	2	11	2	9		19	11	2,503
Tuberculosis of larynx (Class XI, Inter. 28).....	2	6	8		3	1	2		7	3	609
Tuberculosis of pleura (Class XI, Inter. 28).....	2	9	17	3	3		4		12	6	961
Tuberculosis of spinal column (Class XI, Inter. 32).....	7	24	17	1	10	1	17		15	4	2,201
Tuberculosis, unqualified (Class XI, Inter. 34).....	16	77	118	30	40	3	28		94	16	7,332
Tuberculous meningitis (Class XI, Inter. 30).....	1	11		1	2	9					147
Typhoid fever (Class IX, Inter. 1).....	12	36	40	28	18	2			26	14	2,720
Typhus fever (Class X, Inter. 2).....		1		1							31
Ulcer of bladder (Class VII, Inter. 124).....		3	5	2	2				4		84
Ulcer of duodenum (Class III, Inter. 105A).....	26	86	138	49	47	3	35		105	11	5,970
Ulcer of eye and adnexa (Class VI, Inter. 75C).....	9	105	77	100	15		9		65	2	2,969
Ulcer of intestines (Class III, Inter. 105B).....	1	5	4	2	3	1	2		2		209
Ulcer of mouth (Class III, Inter. 99B).....		21	10	18	4		1	1	7		488
Ulcer of nasal passage (Class XVIII, Inter. 86).....	1	7	5	8	2				2	1	102
Ulcer of rectum (Class III, Inter. 110B).....		3	2	2	1				2		43
Ulcer of skin (Class XIX, Inter. 145C).....	44	259	151	276	35		5	1	111	26	9,821
Ulcer of stomach (Class III, Inter. 102).....	44	110	196	76	72	7	43	1	141	10	8,336

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>DISEASES—Continued.</b>											
Ulcer of trachea (Class XVIII, Inter. 98).....	1			1							8
Ulceromembranous angina (Class III, Inter. 100).....	32	1,047	355	908	138			2	270	26	12,128
Uncinariasis (Class XXII, Inter. 106).....	11	441	1,737	1,120	22				1,033	5	4,304
Union of fracture faulty (Class XVI, Inter. 146).....	17	190	160	55	15		143	2	138	14	5,975
Urteral colic (Class VII, Inter. 123).....		12	8	11	4				5		167
Ureteritis (Class VII, Inter. 122).....	1	2	1	1	2				1		113
Urethritis, acute (nonvenereal) (Class VII, Inter. 125).....	6	95	44	87	24		1	1	31	1	1,626
Urethritis, chronic (nonvenereal) (Class VII, Inter. 125).....	2	30	18	24	10				14	2	1,947
Urticaria (Class XIX, Inter. 145C).....	4	210	51	208	17		5		40		1,716
Urticaria pigmentosa (Class XIX, Inter. 145C).....			1	1			5				10
Vaccinia (Class XIII, Inter. 19).....	4	424	19	422	12				12	1	1,622
Valvular disease, chronic cardiac (Class II, Inter. 79A).....	109	1,075	768	372	138	11	774	3	624	30	81,265
Varicocele (Class VII, Inter. 83).....	135	1,422	1,244	1,433	181		22	3	1,129	39	41,735
Varix (Class II, Inter. 83).....	68	296	267	287	47		66		214	12	12,606
Verruga peruviana (Class XIII, Inter. 55).....		2	1	1	1				1		28
Vertigo (Class XXI, Inter. 189A).....	2	36	16	33	9		2		10		475
Vomiting, recurrent (Class III, Inter. 103).....	1	2		3							24
Wart (Class XIX, Inter. 145C).....	2	62	33	61	8				28		1,861
Whooping cough (Class VIII, Inter. 8).....	1	1	1	2					1		38
Xanthoma (Class XIX, Inter. 145C).....		2	2	2	1				1		65
Yaws (Class XIII, Inter. 19).....		4		4							6
Yellow fever (Class X, Inter. 16).....	14			13						1	154
Zoster (Class XVII, Inter. 145C).....	1	18	5	18	1				5		281
<b>FEMALE DISEASES.</b>											
Abortion (Class XXIV, Inter. 134B).....	4			4							47
Abscess, parauterine (Class XXIV, Inter. 130B).....	1			1							15
Abscess, pelvic (Class XXIV, Inter. 130B).....	1						1				2
Abscess of vagina (Class XXIV, Inter. 132).....	1	1		2							18
Amenorrhea (Class XXIV, Inter. 130B).....		6	2	6	1				1		33
Displacement of uterus, unqualified (Class XXIV, Inter. 130B).....	2	21	8	23	3		1		4		861
Dysmenorrhea (Class XXIV, Inter. 130B).....	7	1,278	51	1,329	3		3		1		2,608
Endometritis, acute (Class XXIV, Inter. 130A).....		6	1	4	1				2		85
Endometritis, chronic (Class XXIV, Inter. 130A).....	1	4	3	2	4				2		70
Gestation, extrauterine (Class XXIV, Inter. 134B).....		1	1	1					1		21
Mastitis, chronic (Class XXIV, Inter. 133).....		1		1							22
Menopause (Class XXIV, Inter. 130B).....		1		1							2
Menorrhagia (Class XXIV, Inter. 128).....		25	4	23	1		4		1		179
Metritis, chronic (Class XXIV, Inter. 130A).....		2		1			1				23
Metrorrhagia (Class XXIV, Inter. 128).....		8		6			2				33
Oophoritis, acute (Class XXIV, Inter. 133).....		9		9							45
Oophoritis, chronic (Class XXIV, Inter. 133).....		2		2							30
Pregnancy (Class XXIV, Inter. 134A).....	5	33	4	18			20		4		410
Salpingitis, acute (Class XXIV, Inter. 133).....	2	8		8	1		1				308
Salpingitis, chronic (Class XXIV, Inter. 133).....		8	3	4	1		3		3		422

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>FEMALE DISEASES—</b>											
Continued.											
Subinvolution of uterus (Class XXIV, Inter. 140).....		1	1	1					1		43
Vaginitis, acute (Class XXIV, Inter. 132).....		4		4							13
Vaginitis, chronic (Class XXIV, Inter. 132).....			1		1						0
<b>INJURIES.</b>											
Abrasion, abdomen, "G" (Class XXV, Inter. 186).....		1		1							8
Abrasion, abdomen, "L" (Class XXV, Inter. 186).....		3		3							22
Abrasion, ankle, "G" (Class XXV, Inter. 186).....		2	1	2					1		28
Abrasion, ankle, "I" (Class XXV, Inter. 186).....		1		1							5
Abrasion, ankle, "L" (Class XXV, Inter. 186).....		6	3	6					3		47
Abrasion, arm, "H" (Class XXV, Inter. 186).....		1		1							7
Abrasion, arm, "L" (Class XXV, Inter. 186).....		1		1							1
Abrasion, back, "G" (Class XXV, Inter. 186).....	1			1							9
Abrasion, elbow, "G" (Class XXV, Inter. 186).....		3		3							20
Abrasion, eye and adnexa, "J" (Class XXV, Inter. 186).....		3	1	3					1		19
Abrasion, eye and adnexa, "L" (Class XXV, Inter. 186).....	1	12	2	12					3		86
Abrasion, face, "G" (Class XXV, Inter. 186).....		5	1	5					1		34
Abrasion, face, "L" (Class XXV, Inter. 186).....		1	1	2							36
Abrasion, finger, "G" (Class XXV, Inter. 186).....		3		3							9
Abrasion, finger, "H" (Class XXV, Inter. 186).....		3		3							16
Abrasion, finger, "H-S" (Class XXV, Inter. 186).....		1		1							45
Abrasion, finger, "I" (Class XXV, Inter. 186).....		3		3							10
Abrasion, finger, "J" (Class XXV, Inter. 186).....		1		1							12
Abrasion, finger, "L" (Class XXV, Inter. 186).....	1	12	2	14						1	58
Abrasion, foot, "H" (Class XXV, Inter. 186).....		1								1	.....
Abrasion, foot, "I" (Class XXV, Inter. 186).....		3		2					1		23
Abrasion, foot, "J" (Class XXV, Inter. 186).....		9	1	9					1		65
Abrasion, foot, "K" (Class XXV, Inter. 186).....	2			2							37
Abrasion, foot, "L" (Class XXV, Inter. 186).....	8	74	3	77	5				3		611
Abrasion, forearm, "G" (Class XXV, Inter. 186).....		1		1							12
Abrasion, forearm, "J" (Class XXV, Inter. 186).....		1		1							6
Abrasion, forearm, "L" (Class XXV, Inter. 186).....		1		1							3
Abrasion, hand, "H" (Class XXV, Inter. 186).....		1		1							1
Abrasion, hand, "J" (Class XXV, Inter. 186).....		2		2							24
Abrasion, hand, "L" (Class XXV, Inter. 186).....		12	1	12					1		136
Abrasion, head, "F" (Class XXV, Inter. 186).....			1	1							9
Abrasion, head, "G" (Class XXV, Inter. 186).....		4		4							22
Abrasion, head, "L" (Class XXV, Inter. 186).....	1	3	3	6					1		26
Abrasion, hip, "G" (Class XXV, Inter. 186).....		4		4							19
Abrasion, jaw, "L" (Class XXV, Inter. 186).....	1	1		2							60

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Abrasion, knee, "G" (Class XXV, Inter. 186)		21	2	21					2		161
Abrasion, knee, "I" (Class XXV, Inter. 186)		1		1							9
Abrasion, knee, "J" (Class XXV, Inter. 186)		1	1	1					1		5
Abrasion, knee, "L" (Class XXV, Inter. 186)		4	1	3	1				1		17
Abrasion, leg, "G" (Class XXV, Inter. 186)		25	8	28	1				4		265
Abrasion, leg, "H" (Class XXV, Inter. 186)		1		1							7
Abrasion, leg, "I" (Class XXV, Inter. 186)		2		2							22
Abrasion, leg, "J" (Class XXV, Inter. 186)		4		4							47
Abrasion, leg, "L" (Class XXV, Inter. 186)	1	22	2	24					1		249
Abrasion, mouth, "L" (Class XXV, Inter. 186)		2		2							13
Abrasion, multiple, "G" (Class XXV, Inter. 186)		4	2	4	1				1		124
Abrasion, multiple, "G-R" (Class XXV, Inter. 186)		1	1	1					1		11
Abrasion, multiple, "H" (Class XXV, Inter. 186)		1	2	1	1				1		11
Abrasion, multiple, "I" (Class XXV, Inter. 186)		1		1							12
Abrasion, multiple, "L" (Class XXV, Inter. 186)		2	2	3					1		19
Abrasion, nose, "L" (Class XXV, Inter. 186)		2	1	2					1		16
Abrasion, penis, "I" (Class XXV, Inter. 186)		2		2							3
Abrasion, penis, "L" (Class XXV, Inter. 186)		7	1	5	1				2		41
Abrasion, shoulder, "F" (Class XXV, Inter. 186)		1		1							3
Abrasion, shoulder, "G" (Class XXV, Inter. 186)		1		1							2
Abrasion, thigh, "H" (Class XXV, Inter. 186)		1		1							4
Abrasion, thigh, "I" (Class XXV, Inter. 186)		1		1							1
Abrasion, toe, "J" (Class XXV, Inter. 186)		2		2							5
Abrasion, toe, "L" (Class XXV, Inter. 186)		14	3	13	1				2	1	100
Abrasion, unqualified, "L" (Class XXV, Inter. 186)		2		2							9
Abrasion, wrist, "L" (Class XXV, Inter. 186)		1		1							5
Avulsion, arm, "H-R" (Class XXV, Inter. 186)	1		1				1		1		45
Avulsion, arm, "I" (Class XXV, Inter. 186)		1	1		1				1		142
Avulsion, ear, "G" (Class XXV, Inter. 186)	1	1	1	2					1		153
Avulsion, finger, "E" (Class XXV, Inter. 186)		2	1	2					1		62
Avulsion, finger, "F" (Class XXV, Inter. 186)	1	1	1	2					1		123
Avulsion, finger, "G" (Class XXV, Inter. 186)		2		2							32
Avulsion, finger, "H" (Class XXV, Inter. 186)	1	16	15	13	2		3		12	2	700
Avulsion, finger, "H-R" (Class XXV, Inter. 186)		1		1							40
Avulsion, finger, "H-S" (Class XXV, Inter. 186)		1		1							42
Avulsion, finger, "I" (Class XXV, Inter. 186)		11	3	7	2				5		250
Avulsion, finger, "K" (Class XXV, Inter. 186)			3	1			1		1		20
Avulsion, finger, "L" (Class XXV, Inter. 186)	2	8	3	7	3				3		160
Avulsion, foot, "L" (Class XXV, Inter. 186)	1		1		1				1		307
Avulsion, hand, "H" (Class XXV, Inter. 186)		1	2		1				1	1	200



TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Avulsion, hand, "H-R" (Class XXV, Inter. 186)		1			1						1
Avulsion, hand, "I" (Class XXV, Inter. 186)		1	1				1		1		56
Avulsion, leg, "F" (Class XXV, Inter. 186)		1	1			1			1		0
Avulsion, leg, "H-R" (Class XXV, Inter. 186)	2				1				1		90
Avulsion, teeth, "G" (Class XXV, Inter. 186)			1						1		46
Avulsion, teeth, "L" (Class XXV, Inter. 186)		2	1	3							29
Avulsion, toe, "H" (Class XXV, Inter. 186)	2		1	2			1				235
Avulsion, toe, "I" (Class XXV, Inter. 186)	1	1		2							85
Avulsion, toe, "J" (Class XXV, Inter. 186)		1		1							7
Blood donor, "L" (Class XXV, Inter. 186B)		4	1	3	2						51
Burn, abdomen, "F" (Class XXV, Inter. 167)		4		3					1		4
Burn, abdomen, "L" (Class XXV, Inter. 167)	1	15	2	15					2	1	84
Burn, ankle, "C" (Class XXV, Inter. 167)		1		1							13
Burn, ankle, "H" (Class XXV, Inter. 167)		2		2							26
Burn, ankle, "L" (Class XXV, Inter. 167)	1	23	2	23	1				2		294
Burn, arm, "C" (Class XXV, Inter. 167)		6		6							42
Burn, arm, "F" (Class XXV, Inter. 167)		9		8					1		57
Burn, arm, "J" (Class XXV, Inter. 167)		1		1							6
Burn, arm, "L" (Class XXV, Inter. 167)	1	66	7	69		1			3	1	595
Burn, back, "F" (Class XXV, Inter. 167)	1	1		1	1						7
Burn, back, "L" (Class XXV, Inter. 167)		21	3	22					1	1	188
Burn, ear, "L" (Class XXV, Inter. 167)		1	1	2							30
Burn, elbow, "G" (Class XXV, Inter. 167)		1								1	8
Burn, elbow, "L" (Class XXV, Inter. 167)		3		2					1		4
Burn, eye and adnexa, "C" (Class XXV, Inter. 167)		3	1	1	1		1		1		57
Burn, eye and adnexa, "E" (Class XXV, Inter. 167)		1	1	1					1		27
Burn, eye and adnexa, "F" (Class XXV, Inter. 167)		9	3	9					3		118
Burn, eye and adnexa, "J" (Class XXV, Inter. 167)			1	1							7
Burn, eye and adnexa, "L" (Class XXV, Inter. 167)	3	49	17	48	5		2		12	1	782
Burn, face, "C" (Class XXV, Inter. 167)		12	2	12					2		110
Burn, face, "F" (Class XXV, Inter. 167)	2	19	5	24	1				3	2	419
Burn, face, "H" (Class XXV, Inter. 167)	1	1		2							56
Burn, face, "I" (Class XXV, Inter. 167)	1	44	9	47	2				5		312
Burn, face, "L-R" (Class XXV, Inter. 167)		1		1							6
Burn, finger, "C" (Class XXV, Inter. 167)		2		2							2
Burn, finger, "F" (Class XXV, Inter. 167)		1		1							15
Burn, finger, "L" (Class XXV, Inter. 167)	1	17	4	15	3		1		3		298
Burn, foot, "C" (Class XXV, Inter. 167)		8	2	10							113
Burn, foot, "F" (Class XXV, Inter. 167)		8	2	5					4	1	145
Burn, foot, "G" (Class XXV, Inter. 167)		1		1							8

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Burn, foot, "J" (Class XXV, Inter. 167).		2		2							8
Burn, foot, "I," (Class XXV, Inter. 167).	5	157	43	163	5				33	4	2,755
Burn, forearm, "C" (Class XXV, Inter. 167).		2	1	3							73
Burn, forearm, "P" (Class XXV, Inter. 167).		6	3	8						1	192
Burn, forearm, "I," (Class XXV, Inter. 167).	2	60	8	58	4				8		535
Burn, hand, "C" (Class XXV, Inter. 167).		14	2	16							129
Burn, hand, "E" (Class XXV, Inter. 167).		1		1							0
Burn, hand, "P" (Class XXV, Inter. 167).	1	11	10	14			1		7		514
Burn, hand, "L" (Class XXV, Inter. 167).	3	114	14	113	2				14	2	1,245
Burn, hand, "L-S" (Class XXV, Inter. 167).		1		1							25
Burn, head, "P" (Class XXV, Inter. 167).		1								1	8
Burn, head, "L" (Class XXV, Inter. 167).		5	4	7					2		226
Burn, hip, "C" (Class XXV, Inter. 167).		1		1							21
Burn, hip, "L" (Class XXV, Inter. 167).		4		4							90
Burn, knee, "P" (Class XXV, Inter. 167).		1		1							9
Burn, knee, "L" (Class XXV, Inter. 167).		10	1	10					1		86
Burn, leg, "C" (Class XXV, Inter. 167).		3	2	4					1		27
Burn, leg, "P" (Class XXV, Inter. 167).	1	1	3	3					2		151
Burn, leg, "Q" (Class XXV, Inter. 167).			1	1							30
Burn, leg, "I" (Class XXV, Inter. 167).		1		1							12
Burn, leg, "L" (Class XXV, Inter. 167).	3	57	16	58	3				13	2	1,338
Burn, lower extremity, "C" (Class XXV, Inter. 167).		1		1							16
Burn, lower extremity, "P" (Class XXV, Inter. 167).		2		2							76
Burn, lower extremity, "I" (Class XXV, Inter. 167).		1		1							3
Burn, lower extremity, "L" (Class XXV, Inter. 167).	1	7	6	7	1				6		418
Burn, mouth, "L" (Class XXV, Inter. 167).		2		2							9
Burn, multiple, "C" (Class XXV, Inter. 167).	3	17	14	15		1			16	2	971
Burn, multiple, "E" (Class XXV, Inter. 167).		3	2	2	1				2		10
Burn, multiple, "P" (Class XXV, Inter. 167).	32	98	92	100	9	20	5		79	9	5,655
Burn, multiple, "G-R" (Class XXV, Inter. 167).	1	3	1	3	1				1		127
Burn, multiple, "J" (Class XXV, Inter. 167).		1	1				1		1		76
Burn, multiple, "K" (Class XXV, Inter. 167).	2	1	3	1	1	1	1		2		118
Burn, multiple, "L" (Class XXV, Inter. 167).	4	140	63	131	7	5			55	9	3,063
Burn, multiple, "L-S" (Class XXV, Inter. 167).		1		1							27
Burn, neck, "P" (Class XXV, Inter. 167).		2	2	3	1						8
Burn, neck, "L" (Class XXV, Inter. 167).		5	1	6						1	24
Burn, penis, "L" (Class XXV, Inter. 167).	1	19	9	18	2				8	1	296
Burn, scrotum, "L" (Class XXV, Inter. 167).		11	2	10	1					2	54
Burn, shoulder, "C" (Class XXV, Inter. 167).		2		2							26
Burn, shoulder, "P" (Class XXV, Inter. 167).		3		3							21

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Burn, shoulder, "I" (Class XXV, Inter. 167)		1		1							25
Burn, shoulder, "K" (Class XXV, Inter. 167)	1			1							13
Burn, shoulder, "L" (Class XXV, Inter. 167)		10		10							49
Burn, testicle, "L" (Class XXV, Inter. 167)	1		1		1				1		1
Burn, thigh, "C" (Class XXV, Inter. 167)		1		1							2
Burn, thigh, "F" (Class XXV, Inter. 167)		3	1	3					1		29
Burn, thigh, "G" (Class XXV, Inter. 167)		1		1							0
Burn, thigh, "K" (Class XXV, Inter. 167)			9	1	3				5		227
Burn, thigh, "L" (Class XXV, Inter. 167)		22	7	24	1				4		348
Burn, thorax, "C" (Class XXV, Inter. 167)		1		1							3
Burn, thorax, "F" (Class XXV, Inter. 167)	1	4		5							40
Burn, thorax, "L" (Class XXV, Inter. 167)	2	17		18	1						120
Burn, toe, "L" (Class XXV, Inter. 167)		7	1	8							38
Burn, unqualified, "C" (Class XXV, Inter. 167)	1			1							11
Burn, unqualified, "K" (Class XXV, Inter. 167)			1	1							11
Burn, unqualified, "L" (Class XXV, Inter. 167)		2	1	3							87
Burn, upper extremity, "C" (Class XXV, Inter. 167)		5	1	5					1		55
Burn, upper extremity, "F" (Class XXV, Inter. 167)		5	2	5					2		77
Burn, upper extremity, "L" (Class XXV, Inter. 167)		12	1	12					1		84
Burn, wrist, "L" (Class XXV, Inter. 167)		9		8						1	62
Compression, abdomen, "H" (Class XXV, Inter. 186)	1	2	1	1					1		13
Compression, ear, "K" (Class XXV, Inter. 186)			1				1				36
Compression, head, "G" (Class XXV, Inter. 186)	1	1	2	1	1				2		41
Compression, head, "J" (Class XXV, Inter. 186)	1	1	1	1	2						66
Compression, head, "K" (Class XXV, Inter. 186)			7				7				230
Compression, head, "L" (Class XXV, Inter. 186)		2	3	1	1				3		32
Compression, hip, "L" (Class XXV, Inter. 186)		1	2	1					2		90
Compression, knee, "G" (Class XXV, Inter. 186)		1	1	1	1						17
Compression, spine, "F" (Class XXV, Inter. 186)	1	1	1	1	1				1		76
Compression, spine, "G" (Class XXV, Inter. 186)	1		1		1				1		38
Compression, spine, "L" (Class XXV, Inter. 186)		2	4	3	1				2		62
Compression, tenth cranial nerve, "G" (Class XXV, Inter. 186)		1	1				1		1		53
Compression, thorax, "G" (Class XXV, Inter. 186)		1		1							7
Compression, thorax, "G-R" (Class XXV, Inter. 186)		1	1	2							73
Compression, thorax, "J" (Class XXV, Inter. 186)		1		1							7
Compression, thorax, "L" (Class XXV, Inter. 186)		1							1		0
Contusion, abdomen, "G" (Class XXV, Inter. 186)	2	49	21	49	10				13		781
Contusion, abdomen, "H" (Class XXV, Inter. 186)		3	4	5	1				1		90
Contusion, abdomen, "I" (Class XXV, Inter. 186)	3	13	5	14	2				5		387
Contusion, abdomen, "J" (Class XXV, Inter. 186)		12	10	15	2				5		116

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Contusion, abdomen, "L" (Class XXV, Inter. 186)	2	37	28	40	7		1		19		601
Contusion, ankle, "G" (Class XXV, Inter. 186)	1	31	7	28	4				6	1	606
Contusion, ankle, "G-R" (Class XXV, Inter. 186)				1	1						1
Contusion, ankle, "H" (Class XXV, Inter. 186)		10	6	6	2				7	1	234
Contusion, ankle, "I" (Class XXV, Inter. 186)		23	8	20	5				6		217
Contusion, ankle, "J" (Class XXV, Inter. 186)		9	2	7					4		171
Contusion, ankle, "K" (Class XXV, Inter. 186)	1				1						2
Contusion, ankle, "L" (Class XXV, Inter. 186)	5	52	26	56	8		1		17	1	979
Contusion, arm, "E" (Class XXV, Inter. 186)		1		1							2
Contusion, arm, "G" (Class XXV, Inter. 186)		12	1	11	1				1		68
Contusion, arm, "H" (Class XXV, Inter. 186)		5		4						1	34
Contusion, arm, "I" (Class XXV, Inter. 186)		9	1	6	1				2		151
Contusion, arm, "J" (Class XXV, Inter. 186)		4	1	4					1		159
Contusion, arm, "L" (Class XXV, Inter. 186)	1	11	2	12					1	1	185
Contusion, back, "G" (Class XXV, Inter. 186)	10	122	58	125	23		3		37	2	1,831
Contusion, back, "G-R" (Class XXV, Inter. 186)		3	1	1	1				2		128
Contusion, back, "H" (Class XXV, Inter. 186)		2		2							6
Contusion, back, "I" (Class XXV, Inter. 186)	1	13	2	11	1				4		113
Contusion, back, "J" (Class XXV, Inter. 186)		11	5	8	2				5	1	79
Contusion, back, "K" (Class XXV, Inter. 186)	2		2	1			2		1		99
Contusion, back, "L" (Class XXV, Inter. 186)	1	33	22	32	11		1	1	10	1	593
Contusion, brain, "J" (Class XXV, Inter. 186)		1	3	3					1		79
Contusion, brain, "K" (Class XXV, Inter. 186)			1	1							77
Contusion, brain, "L" (Class XXV, Inter. 186)		1	2	1					2		89
Contusion, ear, "G" (Class XXV, Inter. 186)		2		2							7
Contusion, ear, "H" (Class XXV, Inter. 186)			2	1	1						3
Contusion, ear, "J" (Class XXV, Inter. 186)		4	5	5					4		37
Contusion, ear, "L" (Class XXV, Inter. 186)		4	2	3	1				2		58
Contusion, elbow, "G" (Class XXV, Inter. 186)	2	52	12	49	5		1		10	1	471
Contusion, elbow, "H" (Class XXV, Inter. 186)		3		3							42
Contusion, elbow, "HS" (Class XXV, Inter. 186)		1		1							23
Contusion, elbow, "I" (Class XXV, Inter. 186)		3		2					1		14
Contusion, elbow, "J" (Class XXV, Inter. 186)		6	1	5	1				1		45
Contusion, elbow, "L" (Class XXV, Inter. 186)		11	1	11					1		45
Contusion, eye and adnexa, "E" (Class XXV, Inter. 186)	1	1	1	1	1				1		104
Contusion, eye and adnexa, "F" (Class XXV, Inter. 186)		1		1							2
Contusion, eye and adnexa, "G" (Class XXV, Inter. 186)		13	1	13					1		96
Contusion, eye and adnexa, "H" (Class XXV, Inter. 186)		1		1							19
Contusion, eye and adnexa, "I" (Class XXV, Inter. 186)		1	1	1	1						29
Contusion, eye and adnexa, "J" (Class XXV, Inter. 186)	1	40	15	37	1				18		594

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Contusion, eye and adnexa, "K" (Class XXV, Inter. 186)			1	1							1
Contusion, eye and adnexa, "L" (Class XXV, Inter. 186)	1	56	26	52	7		1		23		670
Contusion, face, "E" (Class XXV, Inter. 186)		1		1							15
Contusion, face, "F" (Class XXV, Inter. 186)		1			1						6
Contusion, face, "G" (Class XXV, Inter. 186)		14	2	14					2		118
Contusion, face, "G-R" (Class XXV, Inter. 186)		1	1		1				1		6
Contusion, face, "H" (Class XXV, Inter. 186)		3	2	4					1		24
Contusion, face, "I" (Class XXV, Inter. 186)	1	2		1					2		39
Contusion, face, "J" (Class XXV, Inter. 186)		5	2	5					2		32
Contusion, face, "K" (Class XXV, Inter. 186)			1	1							30
Contusion, face, "L" (Class XXV, Inter. 186)	1	38	9	36	3				9		327
Contusion, finger, "G" (Class XXV, Inter. 186)		5	1	4	1				1		57
Contusion, finger, "H" (Class XXV, Inter. 186)	1	31	7	28	3				7	1	407
Contusion, finger, "I" (Class XXV, Inter. 186)	1	54	5	56	2				2		472
Contusion, finger, "J" (Class XXV, Inter. 186)		7	3	8	1				1		253
Contusion, finger, "L" (Class XXV, Inter. 186)	1	44	6	48	1				2		411
Contusion, foot, "E" (Class XXV, Inter. 186)		3		2					1		7
Contusion, foot, "F" (Class XXV, Inter. 186)	1	2	2	4	1						69
Contusion, foot, "G" (Class XXV, Inter. 186)	2	65	9	63	6				7		696
Contusion, foot, "H" (Class XXV, Inter. 186)	3	18	4	18			1		6		308
Contusion, foot, "I" (Class XXV, Inter. 186)	8	143	37	138	15				34	1	1,663
Contusion, foot, "J" (Class XXV, Inter. 186)		17	3	18	1				1		106
Contusion, foot, "K" (Class XXV, Inter. 186)			6		2				4		83
Contusion, foot, "L" (Class XXV, Inter. 186)	18	157	58	174	21		3		32	3	2,668
Contusion, forearm, "F" (Class XXV, Inter. 186)		1		1							7
Contusion, forearm, "G" (Class XXV, Inter. 186)		9	1	7	3						44
Contusion, forearm, "H" (Class XXV, Inter. 186)		5	1	4	1				1		228
Contusion, forearm, "I" (Class XXV, Inter. 186)	1	11	3	11	2				2		132
Contusion, forearm, "J" (Class XXV, Inter. 186)		3	2	4	1						43
Contusion, forearm, "L" (Class XXV, Inter. 186)		10	4	8	3				3		178
Contusion, hand, "G" (Class XXV, Inter. 186)	1	17	1	18	1						129
Contusion, hand, "H" (Class XXV, Inter. 186)	1	21	3	23	2						291
Contusion, hand, "I" (Class XXV, Inter. 186)	1	33	8	33	2				7		312
Contusion, hand, "J" (Class XXV, Inter. 186)		13	3	11	1				4		86
Contusion, hand, "K" (Class XXV, Inter. 186)	1		1		1				1		96
Contusion, hand, "L" (Class XXV, Inter. 186)		58	10	54	6				8		590
Contusion, hand, "C" (Class XXV, Inter. 186)			1	1							36
Contusion, head, "F" (Class XXV, Inter. 186)		2	1	2					1		21
Contusion, head, "G" (Class XXV, Inter. 186)	3	71	25	63	13				22	1	658
Contusion, head, "H" (Class XXV, Inter. 186)		3	1	3					1		34

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

Diagnoses.	Rem.	A.	R.A.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Contusion, head, "I" (Class XXV, Inter. 186).....		8	2	7	1				2		41
Contusion, head, "J" (Class XXV, Inter. 186).....		9	6	10	2				3		90
Contusion, head, "L" (Class XXV, Inter. 186).....	4	60	23	68	8		1		18	1	623
Contusion, hip, "F" (Class XXV, Inter. 186).....		2	3	2					3		51
Contusion, hip, "G" (Class XXV, Inter. 186).....	1	62	24	60	6		1		20		713
Contusion, hip, "G-R" (Class XXV, Inter. 186).....		1		1							25
Contusion, hip, "H" (Class XXV, Inter. 186).....		4	2	4	1				1		10
Contusion, hip, "I" (Class XXV, Inter. 186).....		4	3	3	1				3		26
Contusion, hip, "J" (Class XXV, Inter. 186).....		5	3	4	1				2	1	85
Contusion, hip, "K" (Class XXV, Inter. 186).....	1		2	1					2		73
Contusion, hip, "L" (Class XXV, Inter. 186).....		16	6	19	2				1		180
Contusion, jaw, "G" (Class XXV, Inter. 186).....	1	5		5					1		61
Contusion, jaw, "J" (Class XXV, Inter. 186).....		2		2							13
Contusion, jaw, "L" (Class XXV, Inter. 186).....	1	12	8	11	5				5		58
Contusion, kidney, "G" (Class XXV, Inter. 186).....		1	1	1					1		98
Contusion, kidney, "J" (Class XXV, Inter. 186).....		1		1							28
Contusion, kidney, "L" (Class XXV, Inter. 186).....		1		1							6
Contusion, knee, "F" (Class XXV, Inter. 186).....			2	1					1		25
Contusion, knee, "G" (Class XXV, Inter. 186).....	13	196	62	195	16		6		50	4	3,044
Contusion, knee, "G-R" (Class XXV, Inter. 186).....		1		1							16
Contusion, knee, "H" (Class XXV, Inter. 186).....		9	5	10	1				2	1	99
Contusion, knee, "I" (Class XXV, Inter. 186).....		13	6	13					6		303
Contusion, knee, "J" (Class XXV, Inter. 186).....	2	31	11	31	6				7		262
Contusion, knee, "K" (Class XXV, Inter. 186).....	2		4	2					4		167
Contusion, knee, "L" (Class XXV, Inter. 186).....	2	79	34	75	10				29	1	1,113
Contusion, leg, "F" (Class XXV, Inter. 186).....			1	1							10
Contusion, leg, "G" (Class XXV, Inter. 186).....	6	65	10	65	6				9	1	805
Contusion, leg, "H" (Class XXV, Inter. 186).....		14	2	12					4		112
Contusion, leg, "I" (Class XXV, Inter. 186).....		26	2	22					6		121
Contusion, leg, "J" (Class XXV, Inter. 186).....		17	10	16	4				7		117
Contusion, leg, "K" (Class XXV, Inter. 186).....			1	1							120
Contusion, leg, "L" (Class XXV, Inter. 186).....	5	64	16	66	5		1		12	1	953
Contusion, lower extremity, "E" (Class XXV, Inter. 186).....		2	2						4		46
Contusion, lower extremity, "F" (Class XXV, Inter. 186).....			1						1		5
Contusion, lower extremity, "G" (Class XXV, Inter. 186).....		1	2	1					1	1	40
Contusion, lower extremity, "G-R" (Class XXV, Inter. 186).....		1	1	1					1		12
Contusion, lower extremity, "H" (Class XXV, Inter. 186).....			3	1	2						83
Contusion, lower extremity, "L" (Class XXV, Inter. 186).....		4	3	6					1		114
Contusion, mouth, "G" (Class XXV, Inter. 186).....	2		1	3							15
Contusion, mouth, "J" (Class XXV, Inter. 186).....		1	1	1					1		53



TABLE I.—Detailed statement of diseases and injuries for the calendar year 1919—Contd

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Contusion, mouth, "L" (Class XXV, Inter. 186).....		8	7	9					6		93
Contusion, multiple, "G" (Class XXV, Inter. 186).....		66	27	65	6				19	3	1,295
Contusion, multiple, "G-R" (Class XXV, Inter. 186).....		3	5	4					4		150
Contusion, multiple, "I" (Class XXV, Inter. 186).....	1	8	3	6	3				3		192
Contusion, multiple, "J" (Class XXV, Inter. 186).....	2	10	4	9	2	1			4		159
Contusion, multiple, "L" (Class XXV, Inter. 186).....		5	5	7	1				2		44
Contusion, neck, "A" (Class XXV, Inter. 186).....	2	44	26	47	7		1		16	1	904
Contusion, neck, "G" (Class XXV, Inter. 186).....		1	1		1				1		1
Contusion, neck, "H" (Class XXV, Inter. 186).....		5	4	5	2				2		66
Contusion, neck, "I" (Class XXV, Inter. 186).....	1	1	1	1			1		1		246
Contusion, neck, "J" (Class XXV, Inter. 186).....		1		1							1
Contusion, neck, "L" (Class XXV, Inter. 186).....		5	1	5					1		26
Contusion, nose, "G" (Class XXV, Inter. 186).....		8	5	7	3				3		44
Contusion, nose, "J" (Class XXV, Inter. 186).....		7	1	7					1		27
Contusion, nose, "L" (Class XXV, Inter. 186).....		7		7							29
Contusion, pelvis, "G" (Class XXV, Inter. 186).....	1	5	1	6					1		30
Contusion, pelvis, "I" (Class XXV, Inter. 186).....		3	1	4							52
Contusion, pelvis, "L" (Class XXV, Inter. 186).....		1	1				1		1		27
Contusion, penis, "G" (Class XXV, Inter. 186).....		3	2	3					2		14
Contusion, penis, "L" (Class XXV, Inter. 186).....		2		2							6
Contusion, scrotum, "G" (Class XXV, Inter. 186).....		4	2	4	1				1		63
Contusion, scrotum, "L" (Class XXV, Inter. 186).....		2		2							9
Contusion, shoulder, "E" (Class XXV, Inter. 186).....		1		1							1
Contusion, shoulder, "F" (Class XXV, Inter. 186).....		2		2							15
Contusion, shoulder, "G" (Class XXV, Inter. 186).....			1	1							2
Contusion, shoulder, "H" (Class XXV, Inter. 186).....	2	42	24	46	8				14		660
Contusion, shoulder, "I" (Class XXV, Inter. 186).....		4	2	4	1				1		28
Contusion, shoulder, "J" (Class XXV, Inter. 186).....		8	1	7	1				1		23
Contusion, shoulder, "K" (Class XXV, Inter. 186).....	3	11	3	12	2				3		80
Contusion, shoulder, "L" (Class XXV, Inter. 186).....	1			1							21
Contusion, testicle, "G" (Class XXV, Inter. 186).....		26	14	25	9				6		207
Contusion, testicle, "G-R" (Class XXV, Inter. 186).....	1	16	12	17	4		1		7		262
Contusion, testicle, "H" (Class XXV, Inter. 186).....		1		1							11
Contusion, testicle, "I" (Class XXV, Inter. 186).....		1		1							6
Contusion, testicle, "J" (Class XXV, Inter. 186).....		3		3							40
Contusion, testicle, "L" (Class XXV, Inter. 186).....		14	5	16	2				1		119
Contusion, thigh, "F" (Class XXV, Inter. 186).....	1	12	5	10	1				7		125
Contusion, thigh, "G" (Class XXV, Inter. 186).....			1	1							36
Contusion, thigh, "H" (Class XXV, Inter. 186).....	1	22	4	23	1				3		134
Contusion, thigh, "I" (Class XXV, Inter. 186).....		3	1	2	1				1		31

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont. Days.
<b>INJURIES—Continued.</b>										
Contusion, thigh, "H-R" (Class XXV, Inter. 186)		1		1						1
Contusion, thigh, "I" (Class XXV, Inter. 186)		7	1	7					1	79
Contusion, thigh, "J" (Class XXV, Inter. 186)	1	21	9	23	2				6	219
Contusion, thigh, "K" (Class XXV, Inter. 186)			4	2					2	127
Contusion, thigh, "L" (Class XXV, Inter. 186)	1	26	12	29	3				6	357
Contusion, thorax, "G" (Class XXV, Inter. 186)	2	63	33	63	9				26	526
Contusion, thorax, "G-R" (Class XXV, Inter. 186)	1	1	1	2					1	26
Contusion, thorax, "H" (Class XXV, Inter. 186)		3	3	1	2				3	76
Contusion, thorax, "I" (Class XXV, Inter. 186)		8	5	8	2				3	102
Contusion, thorax, "J" (Class XXV, Inter. 186)		13	1	11					3	112
Contusion, thorax, "L" (Class XXV, Inter. 186)	4	28	16	27	7				13	440
Contusion, toes, "E" (Class XXV, Inter. 186)		2	1	2					1	33
Contusion, toes, "G" (Class XXV, Inter. 186)		7	1	7					1	43
Contusion, toes, "H" (Class XXV, Inter. 186)		7	2	7	1				1	73
Contusion, toes, "I" (Class XXV, Inter. 186)	4	54	7	58	2				5	538
Contusion, toes, "J" (Class XXV, Inter. 186)		4		4						30
Contusion, toes, "L" (Class XXV, Inter. 186)	2	77	3	77	1				4	615
Contusion, unqualified, "L" (Class XXV, Inter. 186)		2	1	2					1	12
Contusion, upper extremity, "G" (Class XXV, Inter. 186)		2		2						11
Contusion, upper extremity, "L" (Class XXV, Inter. 186)	-1	1	1	1					1	32
Contusion, wrist, "G" (Class XXV, Inter. 186)	4	4	5	2					1	41
Contusion, wrist, "H" (Class XXV, Inter. 186)	8	1	7	1					1	62
Contusion, wrist, "I" (Class XXV, Inter. 186)	4		4							33
Contusion, wrist, "J" (Class XXV, Inter. 186)	3		3							37
Contusion, wrist, "K" (Class XXV, Inter. 186)		1					1			17
Contusion, wrist, "L" (Class XXV, Inter. 186)		14	3	13					4	126
Crush, abdomen, "I" (Class XXV, Inter. 186)	2	2	1			1			2	112
Crush, ankle, "H" (Class XXV, Inter. 186)	2		1						1	22
Crush, ankle, "I" (Class XXV, Inter. 186)	4	2	3	1					2	58
Crush, arm, "H" (Class XXV, Inter. 186)	1	1	1	1	1					70
Crush, face, "I" (Class XXV, Inter. 186)	1		2				1		2	115
Crush, finger, "H" (Class XXV, Inter. 186)	10	46	21	48	4		4		18	1,422
Crush, finger, "I" (Class XXV, Inter. 186)	9	61	15	61	4		3		16	962
Crush, finger, "I-R" (Class XXV, Inter. 186)		1		1						29
Crush, finger, "J" (Class XXV, Inter. 186)		1	1	1					1	25
Crush, finger, "L" (Class XXV, Inter. 186)	1	12	11	15	4				4	565
Crush, foot, "G" (Class XXV, Inter. 186)	1	2		1					1	139
Crush, foot, "H" (Class XXV, Inter. 186)	3	9	3	4	4		2		5	655
Crush, foot, "I" (Class XXV, Inter. 186)	5	24	20	21	4		4		18	921
Crush, foot, "J" (Class XXV, Inter. 186)			1						1	4



TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Crush, foot, "L" (Class XXV, Inter. 186)		3		2	1						50
Crush, forearm, "H" (Class XXV, Inter. 186)		2	2	1					2	1	48
Crush, forearm, "I" (Class XXV, Inter. 186)		1		1							16
Crush, hand, "H" (Class XXV, Inter. 186)	2	4	15	4	2		3		10	2	670
Crush, hand, "I" (Class XXV, Inter. 186)		13	9	8	1		3		9	1	265
Crush, head, "I" (Class XXV, Inter. 186)		1				1					0
Crush, knee, "G" (Class XXV, Inter. 186)		1			1						3
Crush, leg, "H" (Class XXV, Inter. 186)	2	1	1	2					1	1	118
Crush, leg, "I" (Class XXV, Inter. 186)		5	4	4	1	1			3		99
Crush, lower extremity, "I" (Class XXV, Inter. 186)		2				2					5
Crush, multiple, "I" (Class XXV, Inter. 186)	1	5	1	1	1	4			1		50
Crush, nose, "J" (Class XXV, Inter. 186)		1	2	1	1				1		3
Crush, pelvis, "L" (Class XXV, Inter. 186)		1	1	1					1		10
Crush, testicle, "G" (Class XXV, Inter. 186)		1								1	7
Crush, thigh, "I" (Class XXV, Inter. 186)		1				1					0
Crush, thigh, "L" (Class XXV, Inter. 186)		1	2	1					2		49
Crush, thorax, "H" (Class XXV, Inter. 186)		1				1					0
Crush, thorax, "I" (Class XXV, Inter. 186)		4	2	1		3			2		19
Crush, toe, "G" (Class XXV, Inter. 186)		1		1							1
Crush, toe, "H" (Class XXV, Inter. 186)	1	4	5	5	1				4		300
Crush, toe, "I" (Class XXV, Inter. 186)	1	34	9	28	2				10	4	599
Crush, toe, "L" (Class XXV, Inter. 186)	1	4	2	6						1	184
Crush, wrist, "H" (Class XXV, Inter. 186)		1			1						76
Dislocation, ankle, "G" (Class XXV, Inter. 185A)	1	7	8	3	6		1		6		103
Dislocation, ankle, "J" (Class XXV, Inter. 185A)	1	1	6	1	3				4		116
Dislocation, ankle, "K" (Class XXV, Inter. 185A)			1				1				7
Dislocation, ankle, "L" (Class XXV, Inter. 185A)		6	4	1	2				6	1	150
Dislocation, clavicle, "G" (Class XXV, Inter. 185A)	1	3	2	2	1		1		2		76
Dislocation, clavicle, "J" (Class XXV, Inter. 185A)		3	3	2	1				3		69
Dislocation, elbow, "G" (Class XXV, Inter. 185A)	1	21	16	22	3				12	1	657
Dislocation, elbow, "H" (Class XXV, Inter. 185A)		1	1		1				1		3
Dislocation, elbow, "J" (Class XXV, Inter. 185A)	2	19	22	16	4		1	1	21		770
Dislocation, elbow, "L" (Class XXV, Inter. 185A)	3	6	7	4	5				7		145
Dislocation, hip, "G" (Class XXV, Inter. 185A)	2	6	6	4	2		3		5		154
Dislocation, hip, "K" (Class XXV, Inter. 185A)			1				1				22
Dislocation, hip, "L" (Class XXV, Inter. 185A)	1	4	6	4	2		1		4		99
Dislocation, intra-articular cartilage, "G" (Class XXV, Inter. 185A)	1	18	15	14	6		2		11	1	471
Dislocation, intra-articular cartilage, "H" (Class XXV, Inter. 185A)		1		1							26
Dislocation, intra-articular cartilage, "J" (Class XXV, Inter. 185A)	3	8	20	6	7		5		13		533

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Dislocation, intra-articular cartilage, "K" (Class XXV, Inter. 185A).....			1				1				16
Dislocation, intra-articular cartilage, "L" (Class XXV, Inter. 185A).....	4	11	22	15	6			3	13		1,142
Dislocation, knee, "G" (Class XXV, Inter. 185A).....	3	8	9	6	5		1		8		405
Dislocation, knee, "I" (Class XXV, Inter. 185A).....		1	1	1					1		18
Dislocation, knee, "J" (Class XXV, Inter. 185A).....	3	12	16	6	5		5		14	1	586
Dislocation, knee, "K" (Class XXV, Inter. 185A).....	2			1			1				183
Dislocation, knee, "L" (Class XXV, Inter. 185A).....	1	7	8	6	1		1		8		228
Dislocation, lens, "L" (Class XXV, Inter. 185A).....		3	5	1	1				5	1	257
Dislocation, maxilla, "G" (Class XXV, Inter. 185A).....		3	2	2	1				2		16
Dislocation, maxilla, "L" (Class XXV, Inter. 185A).....		3	2	4					1		23
Dislocation, metacarpal, "G" (Class XXV, Inter. 185A).....	1	3	1	3	1				1		123
Dislocation, metacarpal, "H" (Class XXV, Inter. 185A).....		1		1							16
Dislocation, metacarpal, "H-R" (Class XXV, Inter. 185A).....	1				1						13
Dislocation, metacarpal, "J" (Class XXV, Inter. 185A).....		3		3							29
Dislocation, metacarpal, "L" (Class XXV, Inter. 185A).....		3		2						1	17
Dislocation, metatarsal, "I" (Class XXV, Inter. 185A).....		1		1							21
Dislocation, metatarsal, "J" (Class XXV, Inter. 185A).....		1	1	1					1		18
Dislocation, metatarsal, "L" (Class XXV, Inter. 185A).....		1		1							36
Dislocation, nasal, "G" (Class XXV, Inter. 185A).....		1	2		1				1	1	55
Dislocation, nasal, "J" (Class XXV, Inter. 185A).....			1	1							9
Dislocation, nasal, "L" (Class XXV, Inter. 185A).....		1	1	1					1		10
Dislocation, patella, "G" (Class XXV, Inter. 185A).....		4	12	4	2		2		8		367
Dislocation, patella, "J" (Class XXV, Inter. 185A).....		2	2	3			1				30
Dislocation, patella, "L" (Class XXV, Inter. 185A).....		4	2	2			1		3	1	21
Dislocation, pelvis, "G" (Class XXV, Inter. 185A).....		2	4	1	1				4		108
Dislocation, phalanges, foot, "G" (Class XXV, Inter. 185A).....		1		1							4
Dislocation, phalanges, hand, "G" (Class XXV, Inter. 185A).....	2	8	4	9	1				4		276
Dislocation, phalanges, hand, "H" (Class XXV, Inter. 185A).....		3		3							6
Dislocation, phalanges, hand, "I" (Class XXV, Inter. 185A).....		2	1	1					2		52
Dislocation, phalanges, hand, "J" (Class XXV, Inter. 185A).....		22	6	22	2				4		372
Dislocation, phalanges, hand, "L" (Class XXV, Inter. 185A).....		11	8	13	1				4	1	328
Dislocation, rib, "I" (Class XXV, Inter. 185A).....		1	1	1					1		4
Dislocation, rib, "J" (Class XXV, Inter. 185A).....		2	1	2					1		13
Dislocation, rib, "L" (Class XXV, Inter. 185A).....		1	1						1	1	46
Dislocation, shoulder, "G" (Class XXV, Inter. 185A).....	6	91	65	90	13		3	1	52	3	1,962
Dislocation, shoulder, "H" (Class XXV, Inter. 185A).....		6	8	7	1				5	1	242
Dislocation, shoulder, "I" (Class XXV, Inter. 185A).....		3	1	4							26
Dislocation, shoulder, "J" (Class XXV, Inter. 185A).....	1	54	19	46		1	1		23	3	1,052
Dislocation, shoulder, "K" (Class XXV, Inter. 185A).....			2		1				1		85

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Dislocation, shoulder, "L" (Class XXV, Inter. 185A).....	3	44	25	39	6	.....	7	.....	20	.....	1,011
Dislocation, vertebra, "A" (Class XXV, Inter. 185A).....	.....	1	1	.....	.....	1	.....	.....	1	.....	.....
Dislocation, vertebra, "G" (Class XXV, Inter. 185A).....	.....	3	7	2	1	.....	1	.....	6	.....	205
Dislocation, vertebra, "G-R" (Class XXV, Inter. 185A).....	1	1	2	.....	.....	2	.....	.....	2	.....	159
Dislocation, vertebra, "H" (Class XXV, Inter. 185A).....	.....	2	1	.....	1	.....	.....	.....	2	.....	17
Dislocation, vertebra, "J" (Class XXV, Inter. 185A).....	1	3	2	1	1	.....	2	.....	2	.....	167
Dislocation, vertebra, "L" (Class XXV, Inter. 185A).....	.....	4	7	2	1	.....	4	.....	4	.....	178
Dislocation, wrist, "Q" (Class XXV, Inter. 185A).....	1	9	6	5	2	.....	3	.....	6	.....	105
Dislocation, wrist, "Q-R" (Class XXV, Inter. 185A).....	.....	1	.....	.....	1	.....	.....	.....	.....	.....	1
Dislocation, wrist, "I" (Class XXV, Inter. 185A).....	.....	2	.....	2	.....	.....	.....	.....	.....	.....	4
Dislocation, wrist, "J" (Class XXV, Inter. 185A).....	.....	1	.....	.....	.....	.....	.....	.....	1	.....	3
Dislocation, wrist, "J" (Class XXV, Inter. 185A).....	.....	2	.....	2	.....	.....	.....	.....	.....	.....	37
Dislocation, wrist, "L" (Class XXV, Inter. 185A).....	1	9	5	3	4	.....	2	.....	6	.....	181
Drowning (fatal Submersion), "A" (Class XXV, Inter. 180B).....	.....	8	.....	.....	.....	8	.....	.....	.....	.....	.....
Drowning (fatal Submersion), "D" (Class XXV, Inter. 180B).....	178	.....	.....	.....	.....	178	.....	.....	.....	.....	.....
Drowning (fatal Submersion), "R" (Class XXV, Inter. 180B).....	.....	21	.....	.....	.....	21	.....	.....	.....	.....	.....
Drowning (fatal Submersion), "S" (Class XXV, Inter. 180B).....	.....	3	.....	.....	.....	3	.....	.....	.....	.....	.....
Drowning (fatal Submersion), "L-U" (Class XXV, Inter. 180B).....	.....	1	.....	.....	.....	1	.....	.....	.....	.....	.....
Electric shock, injury from, "L" (Class XXV, Inter. 181).....	.....	8	3	5	.....	4	.....	.....	2	.....	42
Emphysema, traumatic, eye, "J" (Class XXV, Inter. 186).....	.....	1	.....	1	.....	.....	.....	.....	.....	.....	3
Epiphyseal separation, femur, "H" (Class XXV, Inter. 185C).....	.....	1	.....	1	.....	.....	.....	.....	.....	.....	5
Epiphyseal separation, humerus, "G" (Class XXV, Inter. 185C).....	1	.....	.....	.....	1	.....	.....	.....	.....	.....	56
Epiphyseal separation, humerus, "J" (Class XXV, Inter. 185C).....	.....	1	.....	1	.....	.....	.....	.....	.....	.....	6
Epiphyseal separation, knee, "J" (Class XXV, Inter. 185C).....	.....	1	1	.....	.....	.....	1	.....	1	.....	18
Epiphyseal separation, knee, "L" (Class XXV, Inter. 185C).....	.....	1	.....	.....	.....	.....	1	.....	.....	.....	29
Epiphyseal separation, metacarpal, "J" (Class XXV, Inter. 185C).....	.....	1	1	1	.....	.....	.....	.....	1	.....	35
Epiphyseal separation, phalanx, hand, "J" (Class XXV, Inter. 185C).....	.....	1	1	.....	.....	.....	.....	1	1	.....	40
Epiphyseal separation, radius, "G" (Class XXV, Inter. 185C).....	1	5	2	5	.....	.....	.....	.....	1	2	147
Epiphyseal separation, radius, "L" (Class XXV, Inter. 185C).....	.....	1	1	1	.....	.....	.....	.....	1	.....	71
Epiphyseal separation, radius and ulna, "G" (Class XXV, Inter. 185C).....	.....	3	2	4	1	.....	.....	.....	.....	.....	125
Epiphyseal separation, radius and ulna, "J" (Class XXV, Inter. 185C).....	.....	1	.....	1	.....	.....	.....	.....	.....	.....	38
Epiphyseal separation, tibia, "G" (Class XXV, Inter. 185C).....	.....	2	1	1	.....	.....	.....	.....	2	.....	68
Exhaustion from heat, "L" (Class XXV, Inter. 179A).....	2	218	25	210	12	4	.....	.....	10	.....	938
Exhaustion from overexertion, "C" (Class XXV, Inter. 177A).....	.....	1	.....	1	.....	.....	.....	.....	.....	.....	2
Exhaustion from overexertion, "J" (Class XXV, Inter. 177A).....	.....	5	3	5	1	.....	.....	.....	2	.....	35
Exhaustion from overexertion, "K" (Class XXV, Inter. 177A).....	2	.....	15	3	10	.....	.....	.....	4	.....	248

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Exhaustion from overexertion, "L" (Class XXV, Inter. 177A).	7	40	7	44	4				6		506
Exhaustion from overexposure, "K" (Class XXV, Inter. 177A).	5		2	4					3		45
Exhaustion from overexposure, "L" (Class XXV, Inter. 177A).	20	18	10	35	1	2			10		176
Foreign body, traumatic, arm, "E" (Class XXV, Inter. 186).		2	2	1			1		2		29
Foreign body, traumatic, arm, "L" (Class XXV, Inter. 186).		4	1	5							32
Foreign body, traumatic, back, "B" (Class XXV, Inter. 186).		1	2	1	1				1		28
Foreign body, traumatic, back, "L" (Class XXV, Inter. 186).	1	1		2							28
Foreign body, traumatic, chest, "E" (Class XXV, Inter. 186).		1		1							5
Foreign body, traumatic, clavicle, "L" (Class XXV, Inter. 186).		1	1	1					1		17
Foreign body, traumatic, elbow, "L" (Class XXV, Inter. 186).	1		1		1				1		1
Foreign body, traumatic, eye, "E" (Class XXV, Inter. 186).	1	1	2	1	1				2		31
Foreign body, traumatic, eye, "F" (Class XXV, Inter. 186).		5	7	5					7		186
Foreign body, traumatic, eye, "H" (Class XXV, Inter. 186).		10	4	10			1		3		53
Foreign body, traumatic, eye, "I" (Class XXV, Inter. 186).		1	1						2		66
Foreign body, traumatic, eye, "J" (Class XXV, Inter. 186).		1	2	2					1		88
Foreign body, traumatic, eye, "K" (Class XXV, Inter. 186).			7		1		2		4		116
Foreign body, traumatic, eye, "L" (Class XXV, Inter. 186).	2	81	38	77	6		6		32		1,069
Foreign body, traumatic, face, "E" (Class XXV, Inter. 186).		1						1			29
Foreign body, traumatic, finger, "H" (Class XXV, Inter. 186).		1		1							12
Foreign body, traumatic, finger, "L" (Class XXV, Inter. 186).		4	1	3					1	1	84
Foreign body, traumatic, foot, "L" (Class XXV, Inter. 186).		4	4	4	1				3		86
Foreign body, traumatic, forearm, "E" (Class XXV, Inter. 186).		1	1	1					1		13
Foreign body, traumatic, forearm, "F" (Class XXV, Inter. 186).		1	1	1					1		4
Foreign body, traumatic, forearm, "J" (Class XXV, Inter. 186).		1		1							1
Foreign body, traumatic, forearm, "L" (Class XXV, Inter. 186).		1	5	3					3		57
Foreign body, traumatic, hand, "E" (Class XXV, Inter. 186).		1		1							13
Foreign body, traumatic, hand, "F" (Class XXV, Inter. 186).		1		1							14
Foreign body, traumatic, hand, "I" (Class XXV, Inter. 186).		1	1	1					1		19
Foreign body, traumatic, hand, "L" (Class XXV, Inter. 186).	2	7	3	10					2		172
Foreign body, traumatic, knee, "E" (Class XXV, Inter. 186).		1	1						1	1	9
Foreign body, traumatic, knee, "F" (Class XXV, Inter. 186).		1								1	13
Foreign body, traumatic, knee, "G" (Class XXV, Inter. 186).	2	3	4	4					4	1	212
Foreign body, traumatic, knee, "H" (Class XXV, Inter. 186).	1			1							6
Foreign body, traumatic, knee, "J" (Class XXV, Inter. 186).		1	1	1					1		18
Foreign body, traumatic, knee, "L" (Class XXV, Inter. 186).		2	1	2	1						100
Foreign body, traumatic, leg, "E" (Class XXV, Inter. 186).		1	1	1					1		66
Foreign body, traumatic, leg, "L" (Class XXV, Inter. 186).		1	1						1	1	21
Foreign body, traumatic, lunette, "F" (Class XXV, Inter. 186).	1						1				7

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES</b> —Continued.											
Foreign body, traumatic, multiple, "K" (Class XXV, Inter. 185C).....			4	1					3		61
Foreign body, traumatic, neck, "F" (Class XXV, Inter. 185C).....		2		1	1						14
Foreign body, traumatic, neck, "H" (Class XXV, Inter. 185C).....		1		1							2
Foreign body, traumatic, pelvis, "K" (Class XXV, Inter. 185C).....			2	1					1		11
Foreign body, traumatic, rib, "G" (Class XXV, Inter. 185C).....		1	2		2				1		72
Foreign body, traumatic, shoulder, "E" (Class XXV, Inter. 185C).....		1		1							11
Foreign body, traumatic, skull, "K" (Class XXV, Inter. 185C).....			1	1							42
Foreign body, traumatic, stomach, "L" (Class XXV, Inter. 185C).....		1	1	1					1		35
Foreign body, traumatic, thigh, "E" (Class XXV, Inter. 185C).....		3	4	2	1		1		3		141
Foreign body, traumatic, thigh, "K" (Class XXV, Inter. 185C).....			4	2					2		146
Foreign body, traumatic, thigh, "L" (Class XXV, Inter. 185C).....	1	2	4	3					4		80
Foreign body, traumatic, throat, "L" (Class XXV, Inter. 185C).....		1	1	1					1		6
Foreign body, traumatic, toe, "L" (Class XXV, Inter. 185C).....		1			1						107
Foreign body, traumatic, wrist, "L" (Class XXV, Inter. 185C).....	1	2	4	4	1				2		99
Fracture, compound, about ankle, "G" (Class XXV, Inter. 185C).....		1	3	1	2				1		198
Fracture, compound, about ankle, "I" (Class XXV, Inter. 185C).....	1				1						9
Fracture, compound, about ankle, "J" (Class XXV, Inter. 185C).....			1		1						3
Fracture, compound, about ankle, "K" (Class XXV, Inter. 185C).....			3	1					2		138
Fracture, compound, about ankle, "L" (Class XXV, Inter. 185C).....		1					1				42
Fracture, compound, about elbow, "G" (Class XXV, Inter. 185C).....	1			1							34
Fracture, compound, about knee, "K" (Class XXV, Inter. 185C).....			1				1				37
Fracture, compound, about wrist, "G" (Class XXV, Inter. 185C).....		2		1					1		10
Fracture, compound, about wrist, "H" (Class XXV, Inter. 185C).....		2							1	1	39
Fracture, compound, about wrist, "K" (Class XXV, Inter. 185C).....			1		1						4
Fracture, compound, about wrist, "L" (Class XXV, Inter. 185C).....			1						1		69
Fracture, compound, clavicle, "G" (Class XXV, Inter. 185C).....			1						1		30
Fracture, compound, clavicle, "J" (Class XXV, Inter. 185C).....		1		1							31
Fracture, compound, clavicle, "K" (Class XXV, Inter. 185C).....			5	1			1		3		174
Fracture, compound, clavicle, "L" (Class XXV, Inter. 185C).....	1		1	1					1		64
Fracture, compound, femur, "E" (Class XXV, Inter. 185C).....		1	2		1				1	1	188
Fracture, compound, femur, "G" (Class XXV, Inter. 185C).....	4	2	8	2			2		8	2	1,094
Fracture, compound, femur, "H" (Class XXV, Inter. 185C).....		3	2						4	1	62
Fracture, compound, femur, "I" (Class XXV, Inter. 185C).....	1	5	2	6		1			1		459
Fracture, compound, femur, "K" (Class XXV, Inter. 185C).....	9		107	10	11	1	19		69	6	5,603
Fracture, compound, femur, "L" (Class XXV, Inter. 185C).....	1	8	8	2	1				3	1	356
Fracture, compound, fibula, "E" (Class XXV, Inter. 185C).....	1				1						9
Fracture, compound, fibula, "G" (Class XXV, Inter. 185C).....		1	1	1					1		71
Fracture, compound, fibula, "I" (Class XXV, Inter. 185C).....		1	1				1		1		24

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont. Days.
<b>INJURIES—Continued.</b>										
Fracture, compound, fibula, "J" (Class XXV, Inter. 185C).....	1									1 365
Fracture, compound, fibula, "K" (Class XXV, Inter. 185C).....	1		11	3			2		7	251
Fracture, compound, fibula, "L" (Class XXV, Inter. 185C).....		2		1					1	67
Fracture, compound, humerus, "E" (Class XXV, Inter. 185C).....			1						1	13
Fracture, compound, humerus, "G" (Class XXV, Inter. 185C).....	3	2	12	6	2	1			7	1 422
Fracture, compound, humerus, "H" (Class XXV, Inter. 185C).....	1			1						28
Fracture, compound, humerus, "I" (Class XXV, Inter. 185C).....		1	2	1					2	213
Fracture, compound, humerus, "K" (Class XXV, Inter. 185C).....	12		65	5	7		18		43	4 3,619
Fracture, compound, humerus, "L" (Class XXV, Inter. 185C).....	1	1	3	1	1		1		2	134
Fracture, compound, maxilla, "F" (Class XXV, Inter. 185C).....	1		2	2					1	61
Fracture, compound, maxilla, "G" (Class XXV, Inter. 185C).....	1	2	8	4					5	2 317
Fracture, compound, maxilla, "H-R" (Class XXV, Inter. 185C).....		1	2	1					2	125
Fracture, compound, maxilla, "I" (Class XXV, Inter. 185C).....		1	1	2						38
Fracture, compound, maxilla, "J" (Class XXV, Inter. 185C).....	1	5	6	5	1				6	348
Fracture, compound, maxilla, "K" (Class XXV, Inter. 185C).....	2		17	4	5		3		7	723
Fracture, compound, maxilla, "L" (Class XXV, Inter. 185C).....	5	16	18	16	3		1		17	2 898
Fracture, compound, metacarpal, "E" (Class XXV, Inter. 185C).....		1	2				1		2	60
Fracture, compound, metacarpal, "F" (Class XXV, Inter. 185C).....		1	1				1		1	54
Fracture, compound, metacarpal, "G" (Class XXV, Inter. 185C).....		1	1	2						66
Fracture, compound, metacarpal, "H" (Class XXV, Inter. 185C).....		2	4	3			1		2	189
Fracture, compound, metacarpal, "H-R" (Class XXV, Inter. 185C).....			1	1						19
Fracture, compound, metacarpal, "I" (Class XXV, Inter. 185C).....	1	8	3	5	1		1		5	164
Fracture, compound, metacarpal, "J" (Class XXV, Inter. 185C).....	1	1	4	4			1		1	65
Fracture, compound, metacarpal, "K" (Class XXV, Inter. 185C).....	1		13	2			3		9	370
Fracture, compound, metacarpal, "L" (Class XXV, Inter. 185C).....	2	2	2	2	2				2	260
Fracture, compound, metatarsal, "E" (Class XXV, Inter. 185C).....	1	1	3	1	1				2	1 224
Fracture, compound, metatarsal, "F" (Class XXV, Inter. 185C).....	2			1			1			39
Fracture, compound, metatarsal, "G" (Class XXV, Inter. 185C).....	1	1	1						3	123
Fracture, compound, metatarsal, "H" (Class XXV, Inter. 185C).....			1		1					154
Fracture, compound, metatarsal, "I" (Class XXV, Inter. 185C).....	1	4	3	2	1		2		3	321
Fracture, compound, metatarsal, "K" (Class XXV, Inter. 185C).....	1		16		1		6		10	333
Fracture, compound, metatarsal, "L" (Class XXV, Inter. 185C).....		2	2	3					1	300
Fracture, compound, multiple, "G" (Class XXV, Inter. 185C).....	1		1		1				1	156
Fracture, compound, multiple, "I" (Class XXV, Inter. 185C).....	1				1					7
Fracture, compound, multiple, "K" (Class XXV, Inter. 185C).....	1		3	1					3	177
Fracture, compound, multiple, "L" (Class XXV, Inter. 185C).....		1	1				1			1 6
Fracture, compound, nose, "G" (Class XXV, Inter. 185C).....		6	2	6					2	28
Fracture, compound, nose, "H" (Class XXV, Inter. 185C).....	1	1	1	1					1	4
Fracture, compound, nose, "I" (Class XXV, Inter. 185C).....	1			1						13



TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Fracture, compound, nose, "J" (Class XXV, Inter. 185C)	2	13	5	15					5		136
Fracture, compound, nose, "L" (Class XXV, Inter. 185C)	2	17	9	17	3				8		255
Fracture, compound patella, "G" (Class XXV, Inter. 185C)	1	2	2	2			1		2		109
Fracture, compound patella, "H" (Class XXV, Inter. 185C)		1	1	1					1		91
Fracture, compound, patella, "K" (Class XXV, Inter. 185C)	1		15	2	3		1		10		770
Fracture, compound, patella, "L" (Class XXV, Inter. 185C)		1	1	1					1		9
Fracture, compound, pelvis, "E" (Class XXV, Inter. 185C)		2	2		1		1		2		26
Fracture, compound, pelvis, "I" (Class XXV, Inter. 185C)		1	2		1	1			1		1
Fracture, compound, pelvis, "K" (Class XXV, Inter. 185C)			7				1		6		309
Fracture, compound, phalanges, foot, "E" (Class XXV, Inter. 185C)	1	1	2	2					2		51
Fracture, compound, phalanges, foot, "G" (Class XXV, Inter. 185C)			1	1							25
Fracture, compound, phalanges, foot, "H" (Class XXV, Inter. 185C)	1	1	2	2	1				1		299
Fracture, compound, phalanges, foot, "I" (Class XXV, Inter. 185C)		2	7	2	2				5		266
Fracture, compound, phalanges, foot, "L" (Class XXV, Inter. 185C)	1		1	1			1				4
Fracture, compound, phalanges, hand, "E" (Class XXV, Inter. 185C)		2	2	2			1		1		34
Fracture, compound, phalanges, hand, "G" (Class XXV, Inter. 185C)		4	3	4	1				2		69
Fracture, compound, phalanges, hand, "H" (Class XXV, Inter. 185C)	3	30	26	26	9		3		20	1	1,475
Fracture, compound, phalanges, hand, "I" (Class XXV, Inter. 185C)	1	31	19	28			2		17	4	1,050
Fracture, compound, phalanges, hand, "I-B" (Class XXV, Inter. 185C)		1		1							21
Fracture, compound, phalanges, hand, "J" (Class XXV, Inter. 185C)		6		4					2		63
Fracture, compound, phalanges, hand, "K" (Class XXV, Inter. 185C)	1		5	1			2		3		102
Fracture, compound, phalanges, hand, "L" (Class XXV, Inter. 185C)	1	18	13	20	2		1		8	1	567
Fracture, compound, radius, "G" (Class XXV, Inter. 185C)		2	4	2			1		2	1	433
Fracture, compound, radius, "I" (Class XXV, Inter. 185C)		1	2		1				2		24
Fracture, compound, radius, "K" (Class XXV, Inter. 185C)			10		2		2		6		463
Fracture, compound, radius, "L" (Class XXV, Inter. 185C)		2	2	1					3		146
Fracture, compound, radius, and ulna, "E" (Class XXV, Inter. 185C)		1	1	1					1		85
Fracture, compound, radius and ulna, "G" (Class XXV, Inter. 185C)		6	8	3			2		8	1	406
Fracture, compound, radius and ulna, "H" (Class XXV, Inter. 185C)	3	2	2	2			1		4		412
Fracture, compound, radius and ulna, "H-R" (Class XXV, Inter. 185C)			1						1		349
Fracture, compound, radius and ulna, "I" (Class XXV, Inter. 185C)		1	5	3					2	1	262

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Fracture, compound, radius and ulna, "K" (Class XXV, Inter. 185C).....	6	-----	14	2	3	-----	6	-----	9	1	856
Fracture, compound, radius and ulna, "L" (Class XXV, Inter. 185C).....	1	1	12	1	-----	-----	1	-----	11	1	512
Fracture, compound, rib, "G" (Class XXV, Inter. 185C).....	-----	2	-----	1	-----	-----	-----	-----	1	-----	31
Fracture, compound, rib, "K" (Class XXV, Inter. 185C).....	-----	-----	6	1	-----	-----	1	-----	3	1	305
Fracture, compound, scapula, "K" (Class XXV, Inter. 185C).....	-----	-----	9	-----	-----	-----	2	-----	7	-----	286
Fracture, compound, skull, "B" (Class XXV, Inter. 185C).....	1	3	6	2	2	-----	1	-----	5	-----	111
Fracture, compound, skull, "F" (Class XXV, Inter. 185C).....	1	5	2	2	-----	2	-----	-----	1	2	222
Fracture, compound, skull, "G" (Class XXV, Inter. 185C).....	4	13	14	6	4	13	1	-----	7	-----	95
Fracture, compound, skull, "G-R" (Class XXV, Inter. 185C).....	1	5	1	1	1	4	-----	-----	1	-----	51
Fracture, compound, skull, "H" (Class XXV, Inter. 185C).....	1	2	1	2	-----	-----	-----	-----	1	1	90
Fracture, compound, skull, "I" (Class XXV, Inter. 185C).....	1	2	1	-----	-----	3	-----	-----	1	-----	166
Fracture, compound, skull, "J" (Class XXV, Inter. 185C).....	1	1	1	2	-----	-----	-----	-----	1	-----	77
Fracture, compound, skull, "K" (Class XXV, Inter. 185C).....	1	-----	15	2	-----	-----	8	-----	6	-----	502
Fracture, compound, skull, "L" (Class XXV, Inter. 185C).....	4	17	20	4	1	8	6	1	20	1	500
Fracture, compound, tibia, "E" (Class XXV, Inter. 185C).....	-----	2	3	1	-----	-----	-----	-----	3	1	414
Fracture, compound, tibia, "F" (Class XXV, Inter. 185C).....	2	-----	-----	1	1	-----	-----	-----	-----	-----	113
Fracture, compound, tibia, "G" (Class XXV, Inter. 185C).....	1	8	11	6	1	-----	-----	-----	10	2	1,239
Fracture, compound, tibia, "G-R" (Class XXV, Inter. 185C).....	1	1	1	-----	1	1	-----	-----	1	-----	6
Fracture, compound, tibia, "H" (Class XXV, Inter. 185C).....	1	-----	1	1	-----	-----	-----	-----	-----	1	219
Fracture, compound, tibia, "I" (Class XXV, Inter. 185C).....	-----	6	11	2	1	-----	2	-----	10	2	647
Fracture, compound, tibia, "J" (Class XXV, Inter. 185C).....	1	1	5	1	3	-----	-----	-----	2	1	61
Fracture, compound, tibia, "K" (Class XXV, Inter. 185C).....	2	-----	46	7	3	-----	11	-----	26	1	1,000
Fracture, compound, tibia, "L" (Class XXV, Inter. 185C).....	4	1	12	2	1	-----	2	-----	12	-----	627
Fracture, compound, tibia and fibula, "E" (Class XXV, Inter. 185C).....	-----	1	2	-----	-----	-----	-----	-----	2	1	133
Fracture, compound, tibia and fibula, "F" (Class XXV, Inter. 185C).....	-----	-----	3	-----	-----	-----	-----	-----	1	2	230
Fracture, compound, tibia and fibula, "G" (Class XXV, Inter. 185C).....	6	5	20	5	2	-----	3	-----	17	4	1,850
Fracture, compound, tibia and fibula, "G-R" (Class XXV, Inter. 185C).....	1	2	-----	-----	-----	-----	-----	-----	2	1	63
Fracture, compound, tibia and fibula, "H" (Class XXV, Inter. 185C).....	5	3	6	2	2	-----	1	-----	7	2	613
Fracture, compound, tibia and fibula, "H-R" (Class XXV, Inter. 185C).....	1	-----	-----	-----	-----	-----	1	-----	-----	-----	125
Fracture, compound, tibia and fibula, "I" (Class XXV, Inter. 185C).....	9	3	18	5	3	-----	4	-----	15	3	2,914
Fracture, compound, tibia and fibula, "J" (Class XXV, Inter. 185C).....	1	-----	2	-----	1	-----	-----	-----	2	-----	105
Fracture, compound, tibia and fibula, "K" (Class XXV, Inter. 185C).....	-----	-----	27	-----	2	-----	4	-----	18	3	1,276
Fracture, compound, tibia and fibula, "L" (Class XXV, Inter. 185C).....	13	15	45	9	4	1	8	-----	45	6	3,674
Fracture, compound, ulna, "E" (Class XXV, Inter. 185C).....	1	-----	-----	-----	1	-----	-----	-----	-----	-----	5



TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Fracture, compound, ulna, "G" (Class XXV, Inter. 185C).....		2							2		0
Fracture, compound, ulna, "H" (Class XXV, Inter. 185C).....		2	6	3					5		214
Fracture, compound, ulna, "K" (Class XXV, Inter. 185C).....	4		18	4	2		6		11		955
Fracture, compound, ulna, "L" (Class XXV, Inter. 185C).....	1	1	1	1			1		1		208
Fracture, compound, upper ex- tremity, "K" (Class XXV, Inter. 185C).....			1							1	9
Fracture, compound, upper ex- tremity, "L" (Class XXV, Inter. 185C).....			1						1		201
Fracture, simple, about ankle, "G" (Class XXV, Inter. 185C).....	5	24	26	22	4		11	1	15	2	1,713
Fracture, simple, about ankle, "G-R" (Class XXV, Inter. 185C).....		1	1	1					1		49
Fracture, simple, about ankle, "H" (Class XXV, Inter. 185C).....	1	1	2	1			1	1	1		14
Fracture, simple, about ankle, "I" (Class XXV, Inter. 185C).....		6	3	4	1		1		3		139
Fracture, simple, about ankle, "J" (Class XXV, Inter. 185C).....		9	9	6	1		3		8		239
Fracture, simple, about ankle, "K" (Class XXV, Inter. 185C).....	1		3	1	1		1		1		42
Fracture, simple, about ankle, "L" (Class XXV, Inter. 185C).....	2	10	10	7	3		2		10		358
Fracture, simple, about elbow, "G" (Class XXV, Inter. 185C).....	3	9	8	8	2		3		7		358
Fracture, simple, about elbow, "H" (Class XXV, Inter. 185C).....		1		1							27
Fracture, simple, about elbow, "I" (Class XXV, Inter. 185C).....	2	3	2	3	2				2		123
Fracture, simple, about elbow, "L" (Class XXV, Inter. 185C).....	1	3	2	2	2				2		107
Fracture, simple, about shoulder, "G" (Class XXV, Inter. 185C).....	1	4	2	3	1				2	1	72
Fracture, simple, about shoulder, "L" (Class XXV, Inter. 185C).....		1	1		1				1		6
Fracture, simple, about wrist, "G" (Class XXV, Inter. 185C).....	3	51	25	41	6		3		26	3	1,430
Fracture, simple, about wrist, "H" (Class XXV, Inter. 185C).....	2	5	6	5	2				6		119
Fracture, simple, about wrist, "I" (Class XXV, Inter. 185C).....	1	5	1	3	1				2	1	93
Fracture, simple, about wrist, "J" (Class XXV, Inter. 185C).....	2	13	4	10	3		1		4	1	746
Fracture, simple, about wrist, "K" (Class XXV, Inter. 185C).....			1						1		12
Fracture, simple, about wrist, "L" (Class XXV, Inter. 185C).....	1	12	5	12	1		1		4		217
Fracture, simple, clavicle, "E" (Class XXV, Inter. 185C).....		1	2	2					1		67
Fracture, simple, clavicle "G" (Class XXV, Inter. 185C).....	14	63	71	66	13		3		62	4	3,328
Fracture, simple, clavicle "G-R" (Class XXV, Inter. 185C).....	1			1							4
Fracture, simple, clavicle "H" (Class XXV, Inter. 185C).....		2	6	4	1		1		1	1	213
Fracture, simple, clavicle "I" (Class XXV, Inter. 185C).....		2	2	3					1		90
Fracture, simple, clavicle "J" (Class XXV, Inter. 185C).....	5	41	36	35	5		2		36	4	1,823
Fracture, simple, clavicle "K" (Class XXV, Inter. 185C).....			3	1			1		1		51
Fracture, simple, clavicle "L" (Class XXV, Inter. 185C).....	7	25	24	29	3		1		20	3	1,262
Fracture, simple, femur "E" (Class XXV, Inter. 185C).....		1	1				1		1		75
Fracture, simple, femur "F" (Class XXV, Inter. 185C).....	2		2		2				2		233
Fracture, simple, femur "G" (Class XXV, Inter. 185C).....	28	34	75	22	9		27		71	8	6,869
Fracture, simple, femur "H" (Class XXV, Inter. 185C).....	1	3	6	1	2				6	1	720
Fracture, simple, femur "I" (Class XXV, Inter. 185C).....	4	7	14	5	3		2		14	1	921
Fracture, simple, femur "J" (Class XXV, Inter. 185C).....		4	6	2	2		1		5		317

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	18.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Fracture, simple, femur "K" (Class XXV, Inter. 185C)	1		12	2	2		2		7		289
Fracture, simple, femur "L" (Class XXV, Inter. 185C)	8	18	34	7	5	1	9		34	4	2,948
Fracture, simple, femur "L-R" (Class XXV, Inter. 185C)		1	1				1		1		183
Fracture, simple, fibula "G" (Class XXV, Inter. 185C)	32	87	131	99	38				106	7	7,242
Fracture, simple, fibula "H" (Class XXV, Inter. 185C)		5	8	4	2				7		464
Fracture, simple, fibula "I" (Class XXV, Inter. 185C)	2	10	9	5	5				11		324
Fracture, simple, fibula "J" (Class XXV, Inter. 185C)	16	65	68	62	14				71	2	3,930
Fracture, simple, fibula "K" (Class XXV, Inter. 185C)			4	1					3		94
Fracture, simple, fibula "L" (Class XXV, Inter. 185C)	7	34	38	36	7			1	30	5	2,46
Fracture, simple, humerus "G" (Class XXV, Inter. 185C)	12	52	62	43	17		7	1	54	4	2,608
Fracture, simple, humerus "G-R" (Class XXV, Inter. 185C)		2	2						2	2	407
Fracture, simple, humerus "H" (Class XXV, Inter. 185C)		5	11	4	2				8	2	417
Fracture, simple, humerus "H-R" (Class XXV, Inter. 185C)	2	1					1		2		108
Fracture, simple, humerus "I" (Class XXV, Inter. 185C)		3	2	3					2		275
Fracture, simple, humerus "J" (Class XXV, Inter. 185C)	1	12	20	10	1		1		20	1	873
Fracture, simple, humerus "K" (Class XXV, Inter. 185C)	1		3				1		3		153
Fracture, simple, humerus "L" (Class XXV, Inter. 185C)	4	16	21	16	5		4		15	1	986
Fracture, simple, maxilla "G" (Class XXV, Inter. 185C)	4	26	35	19	9		1		31	5	1,216
Fracture, simple, maxilla "H" (Class XXV, Inter. 185C)		1	1				1		1		26
Fracture, simple, maxilla, "I" (Class XXV, Inter. 185C)	1	2	2	4					1		210
Fracture, simple, maxilla, "J" (Class XXV, Inter. 185C)	1	15	16	14	1			1	15	1	586
Fracture, simple, maxilla, "K" (Class XXV, Inter. 185C)			3		1				2		64
Fracture, simple, maxilla, "L" (Class XXV, Inter. 185C)	6	53	49	56	8				41	3	2,704
Fracture, simple, metacarpal "E" (Class XXV, Inter. 185C)		1		1							4
Fracture, simple, metacarpal "F" (Class XXV, Inter. 185C)		1							1		4
Fracture, simple, metacarpal "G" (Class XXV, Inter. 185C)	11	88	62	95	6		3	1	54	2	2,546
Fracture, simple, metacarpal "H" (Class XXV, Inter. 185C)	4	8	7	8	4		2		5		376
Fracture, simple, metacarpal, "I" (Class XXV, Inter. 185C)	1	22	13	20					15	1	461
Fracture, simple, metacarpal "J" (Class XXV, Inter. 185C)	4	140	70	136	6		2	1	67	2	3,496
Fracture, simple, metacarpal "L" (Class XXV, Inter. 185C)	16	166	64	160	19		3	1	59	4	2,849
Fracture, simple, metatarsal "E" (Class XXV, Inter. 185C)			1	1							67
Fracture, simple, metatarsal "F" (Class XXV, Inter. 185C)		1	1	1			1				38
Fracture, simple, metatarsal "G" (Class XXV, Inter. 185C)	16	59	84	44	18		13		81	3	3,511
Fracture, simple, metatarsal "G-R" (Class XXV, Inter. 185C)	1		2				1		2		60
Fracture, simple, metatarsal "H" (Class XXV, Inter. 185C)	1	2	7	2			2		4	2	339
Fracture, simple, metatarsal "I" (Class XXV, Inter. 185C)	7	26	24	30	7		2		18		1,265
Fracture, simple, metatarsal "J" (Class XXV, Inter. 185C)	2	12	3	12			2		3		485
Fracture, simple, metatarsal "K" (Class XXV, Inter. 185C)			5	2	1				2		38
Fracture, simple, metatarsal "L" (Class XXV, Inter. 185C)	10	37	36	38	10		6		27	2	2,085

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Fracture, simple, multiple, "G" (Class XXV, Inter. 185C)	3	3	4	2			3		4	1	768
Fracture, simple, multiple, "H" (Class XXV, Inter. 185C)	2	1	2	2	1				2		290
Fracture, simple, multiple, "I" (Class XXV, Inter. 185C)	1	1					1		1		84
Fracture, simple, multiple, "L" (Class XXV, Inter. 185C)	2	1	1	1	2				1		168
Fracture, simple, nose, "G" (Class XXV, Inter. 185C)	1	23	13	19	6			1	10	1	212
Fracture, simple, nose, "G-R" (Class XXV, Inter. 185C)		2		1					1		8
Fracture, simple, nose, "H" (Class XXV, Inter. 185C)	1	1		1	1						10
Fracture, simple, nose, "H-R" (Class XXV, Inter. 185C)		1		1							3
Fracture, simple, nose, "I" (Class XXV, Inter. 185C)		1	4	2	1			1	1		86
Fracture, simple, nose, "J" (Class XXV, Inter. 185C)	2	41	24	41	2				23	1	351
Fracture, simple, nose, "L" (Class XXV, Inter. 185C)	3	62	30	55	7			1	30	2	968
Fracture, simple, patella "G" (Class XXV, Inter. 185C)	7	29	45	17	5	1	9		41	8	2,777
Fracture, simple, patella "I" (Class XXV, Inter. 185C)		2	1	2			1				35
Fracture, simple, patella "J" (Class XXV, Inter. 185C)		10	5	4	3				7	1	414
Fracture, simple, patella "K" (Class XXV, Inter. 185C)	2		5	3			2		2		122
Fracture, simple, patella "L" (Class XXV, Inter. 185C)	3	8	13	5	6		4		8	1	584
Fracture, simple, pelvis "E" (Class XXV, Inter. 185C)		1	1				1		1		73
Fracture, simple, pelvis "G" (Class XXV, Inter. 185C)	2	8	10	5	4		1		10		700
Fracture, simple, pelvis "H" (Class XXV, Inter. 185C)		2	3		1		1		3		61
Fracture, simple, pelvis "I" (Class XXV, Inter. 185C)		5	11	5	1	1			8	1	496
Fracture, simple, pelvis "K" (Class XXV, Inter. 185C)			1		1						28
Fracture, simple, pelvis "L" (Class XXV, Inter. 185C)	1	4	2	2		1	1		2	1	532
Fracture, simple, phalanges (foot) "E" (Class XXV, Inter. 185C)	1					1					22
Fracture, simple, phalanges (foot) "G" (Class XXV, Inter. 185C)		13	8	10	3				8		235
Fracture, simple, phalanges (foot) "H" (Class XXV, Inter. 185C)	1	2	6	4	1		1		3		157
Fracture, simple, phalanges (foot) "I" (Class XXV, Inter. 185C)	5	31	8	36	1				7		844
Fracture, simple, phalanges (foot) "J" (Class XXV, Inter. 185C)		5	2	3	2				2		38
Fracture, simple, phalanges (foot) "K" (Class XXV, Inter. 185C)			1				1				4
Fracture, simple, phalanges (foot) "L" (Class XXV, Inter. 185C)	3	23	12	28	1			1	5	3	594
Fracture, simple, phalanges (hand) "G" (Class XXV, Inter. 185C)	2	19	11	22	2				8		454
Fracture, simple, phalanges (hand) "H" (Class XXV, Inter. 185C)		15	7	15					7		395
Fracture, simple, phalanges (hand) "I" (Class XXV, Inter. 185C)	2	30	5	27	1				7	2	657
Fracture, simple, phalanges (hand) "J" (Class XXV, Inter. 185C)	2	55	25	63	3				16		1,073
Fracture, simple, phalanges (hand) "K" (Class XXV, Inter. 185C)			1	1							5

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Fracture, simple, phalanges (hand) "L" (Class XXV, Inter. 185C).....	4	21	27	26	6		1		15	4	1,217
Fracture, simple, radius "G" (Class XXV, Inter. 185C).....	26	154	150	148	29		11	1	132	9	8,053
Fracture, simple, radius "G-R" (Class XXV, Inter. 185C).....		1		1							18
Fracture, simple, radius "H" (Class XXV, Inter. 185C).....	6	54	35	58	3				29	5	1,800
Fracture, simple, radius "I" (Class XXV, Inter. 185C).....	1	9	6	9	2				5		316
Fracture, simple, radius "J" (Class XXV, Inter. 185C).....	6	36	27	36	6		2		25		1,299
Fracture, simple, radius "K" (Class XXV, Inter. 185C).....			1				1				110
Fracture, simple, radius "L" (Class XXV, Inter. 185C).....	11	68	55	71	8		3		48	4	2,583
Fracture, simple, radius and ulna, "G" (Class XXV, Inter. 185C).....	15	24	43	32	5		8		34	3	1,905
Fracture, simple, radius and ulna, "G-R" (Class XXV, Inter. 185C).....		1	1				1		1		41
Fracture, simple, radius and ulna, "H" (Class XXV, Inter. 185C).....	3	6	11	9	1		2		8		471
Fracture, simple, radius and ulna, "H-R" (Class XXV, Inter. 185C).....	2		1	2					1		47
Fracture, simple, radius and ulna, "I" (Class XXV, Inter. 185C).....		5	6	2	1		2		6		239
Fracture, simple, radius and ulna, "J" (Class XXV, Inter. 185C).....	2	5	4	5			1		5		371
Fracture, simple, radius and ulna, "K" (Class XXV, Inter. 185C).....			1				1				95
Fracture, simple, radius and ulna, "L" (Class XXV, Inter. 185C).....	5	11	20	15	5		1		14	1	905
Fracture, simple, rib, "G" (Class XXV, Inter. 185C).....	2	41	28	40	11				19	1	1,119
Fracture, simple, rib, "G-R" (Class XXV, Inter. 185C).....		4		4							13
Fracture, simple, rib, "H" (Class XXV, Inter. 185C).....		4	1	4					1		29
Fracture, simple, rib, "I" (Class XXV, Inter. 185C).....		8	1	5	1				3		93
Fracture, simple, rib, "J" (Class XXV, Inter. 185C).....	1	25	9	23	2		1		9		421
Fracture, simple, rib, "K" (Class XXV, Inter. 185C).....			1						1		5
Fracture, simple, rib, "L" (Class XXV, Inter. 185C).....	6	45	24	46	7	1	1		20		690
Fracture, simple, scapula, "G" (Class XXV, Inter. 185C).....	1	11	6	8	2		1		6	1	268
Fracture, simple, scapula, "G-R" (Class XXV, Inter. 185C).....		1		1							12
Fracture, simple, scapula, "H" (Class XXV, Inter. 185C).....		1		1							14
Fracture, simple, scapula, "J" (Class XXV, Inter. 185C).....		1	1	1					1		52
Fracture, simple, scapula, "L" (Class XXV, Inter. 185C).....	1	3	5	3	3				3		156
Fracture, simple, skull, "A" (Class XXV, Inter. 185C).....		1				1					0
Fracture, simple, skull, "G" (Class XXV, Inter. 185C).....	3	24	36	17	10	9	1		25	1	1,153
Fracture, simple, skull, "G-R" (Class XXV, Inter. 185C).....	1	7		1		7					272
Fracture, simple, skull, "H" (Class XXV, Inter. 185C).....		1	2	1					2		153
Fracture, simple, skull, "I" (Class XXV, Inter. 185C).....	2			1		1					70
Fracture, simple, skull, "J" (Class XXV, Inter. 185C).....		4	8	4	2		1		5		253
Fracture, simple, skull, "K" (Class XXV, Inter. 185C).....			1				1				53
Fracture, simple, skull, "L" (Class XXV, Inter. 185C).....	5	20	24	17	6	7	3		15	1	900
Fracture, simple, sternum, "G" (Class XXV, Inter. 185C).....		1		1							16
Fracture, simple, sternum, "L" (Class XXV, Inter. 185C).....	1	2	1						2		38
Fracture, simple, teeth, "G" (Class XXV, Inter. 185C).....		2	1	2					1		3



TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Fracture, simple, teeth, "L" (Class XXV, Inter. 185C).....		2	1	1	1				1		1
Fracture, simple, tibia, "E" (Class XXV, Inter. 185C).....			3	2					1		9
Fracture, simple, tibia, "G" (Class XXV, Inter. 185C).....	20	54	66	57	12		5	1	62	2	4,147
Fracture, simple, tibia, "G-R" (Class XXV, Inter. 185C).....		1	1	1					1		97
Fracture, simple, tibia, "H" (Class XXV Inter. 185C).....	2	8	3	6	1				6		379
Fracture, simple, tibia, "I" (Class XXV Inter. 185C).....	5	17	21	17	6		2		18		2,040
Fracture, simple, tibia, "J" (Class XXV Inter. 185C).....	9	16	25	23	2		3		18	4	1,374
Fracture, simple, tibia, "K" (Class XXV Inter. 185C).....	1		7	1			3		4		584
Fracture, simple, tibia, "L" (Class XXV Inter. 185C).....	10	31	70	33	12		6		55	5	3,744
Fracture, simple, tibia and fibula, "E" (Class XXV Inter. 185C).....	1	1			1				1		247
Fracture, simple, tibia and fibula, "G" (Class XXV Inter. 185C).....	9	24	63	22	9		12		49	4	3,687
Fracture, simple, tibia and fibula, "GR" (Class XXV Inter. 185C).....	2	1	2	3					1	1	208
Fracture, simple, tibia and fibula, "H" (Class XXV Inter. 185C).....	4	1	7	3			2		3	4	1,062
Fracture, simple, tibia and fibula, "I" (Class XXV Inter. 185C).....	4	7	18	8	3		5		12	1	1,530
Fracture, simple, tibia and fibula, "J" (Class XXV, Inter. 185C).....	4	7	14	8			4		13		822
Fracture, simple, tibia and fibula, "K" (Class XXV, Inter. 185C).....			1				1				21
Fracture, simple, tibia and fibula, "L" (Class XXV, Inter. 185C).....	8	11	38	15	7		2		29	4	2,446
Fracture, simple, ulna, "E" (Class XXV, Inter. 185C).....		1	1				1		1		26
Fracture, simple, ulna, "G" (Class XXV, Inter. 185C).....	11	39	52	36	15		5		42	4	1,982
Fracture, simple, ulna, "G-R" (Class XXV, Inter. 185C).....		1	1	2							98
Fracture, simple, ulna, "H" (Class XXV, Inter. 185C).....	1	2	7	3	2				5		281
Fracture, simple, ulna, "H-R" (Class XXV, Inter. 185C).....		1	3		1				3		125
Fracture, simple, ulna, "I" (Class XXV, Inter. 185C).....		4	1	3	1				1		139
Fracture, simple, ulna, "J" (Class XXV, Inter. 185C).....		18	5	15	2				6		388
Fracture, simple, ulna, "K" (Class XXV, Inter. 185C).....			1		1						117
Fracture, simple, ulna, "L" (Class XXV, Inter. 185C).....	6	7	11	6	4		1	1	11	1	816
Fracture, simple, upper extrem- ity, "P" (Class XXV, Inter. 185C).....	1				1						299
Fracture, simple, upper extrem- ity, "G" (Class XXV, Inter. 185C).....	1	1	2	1	1				2		46
Fracture, simple, vertebra, "G" (Class XXV, Inter. 185C).....	9	17	42	14	10	3	8		32	1	1,711
Fracture, simple, vertebra, "G-R" (Class XXV, Inter. 185C).....		4				2	1			1	41
Fracture, simple, vertebra, "H" (Class XXV, Inter. 185C).....		1	1				1		1		117
Fracture, simple, vertebra, "I" (Class XXV, Inter. 185C).....		2	1				2		1		199
Fracture, simple, vertebra, "J" (Class XXV, Inter. 185C).....		2	1				1		1	1	49
Fracture, simple, vertebra, "K" (Class XXV, Inter. 185C).....			2	1					1		79
Fracture, simple, vertebra, "L" (Class XXV, Inter. 185C).....	5	9	32	8	6	1	7		23	1	1,014
Fracture, simple, vertebra, "L-R" (Class XXV, Inter. 185C).....	1			1							3
Frostbite, ear "L" (Class XXV, Inter. 178).....		2	2	1					2	1	34
Frostbite, finger, "L" (Class XXV, Inter. 178).....		1	1				1		1		26

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Frostbite, foot, "K" (Class XXV, Inter. 178).....	1			5	1	1	1		3		125
Frostbite, foot, "L" (Class XXV, Inter. 178).....	2	3	7	4			3		5		179
Frostbite, hand, "L" (Class XXV, Inter. 178).....		1		1							12
Frostbite, lower extremity, "K" (Class XXV, Inter. 178).....			1				1				89
Frostbite, multiple "L" (Class XXV, Inter. 178).....		1	1						1	1	21
Frostbite, toe "L" (Class XXV, Inter. 178).....		2	1	2					1		66
Heat cramps, "L" (Class XXV, Inter. 179A).....		154	4	152	3				3		463
Hematocoele, tunica vaginalis, traumatic "G" (Class XXV, Inter. 127).....		2	1	2					1		70
Hematocoele, tunica vaginalis, traumatic "L" (Class XXV, Inter. 127).....		3	3	3	1				2		117
Hematoma, traumatic, abdomen "G" (Class XXV, Inter. 186).....	1			1							19
Hematoma, traumatic, abdomen "J" (Class XXV, Inter. 186).....	1			1							24
Hematoma, traumatic, abdomen "L" (Class XXV, Inter. 186).....	1		1	1					1		252
Hematoma, traumatic, ear "J" (Class XXV, Inter. 186).....		2	1	2					1		23
Hematoma, traumatic, elbow "J" (Class XXV, Inter. 186).....	1			1							7
Hematoma, traumatic, elbow "L" (Class XXV, Inter. 186).....	1			1							1
Hematoma, traumatic, eye "J" (Class XXV, Inter. 186).....	1			1							2
Hematoma, traumatic, finger "I" (Class XXV, Inter. 186).....	1			1							13
Hematoma, traumatic, head "G" (Class XXV, Inter. 186).....	2	2	2	2	1				1		26
Hematoma, traumatic, head "J" (Class XXV, Inter. 186).....	2	2	2	2	1				1		16
Hematoma, traumatic, head "L" (Class XXV, Inter. 186).....	1			1							12
Hematoma, traumatic, hip "J" (Class XXV, Inter. 186).....	1			1							2
Hematoma, traumatic, knee "G" (Class XXV, Inter. 186).....	1			1							3
Hematoma, traumatic, leg "G" (Class XXV, Inter. 186).....	2			2							26
Hematoma, traumatic, leg "H" (Class XXV, Inter. 186).....	1			1							5
Hematoma, traumatic, leg "I" (Class XXV, Inter. 186).....	1			1							7
Hematoma, traumatic, leg "L" (Class XXV, Inter. 186).....	1	3	2	2	2				2		73
Hematoma, traumatic, nose "L" (Class XXV, Inter. 186).....	1	2	1	1	1				1		24
Hematoma, traumatic, penis "L" (Class XXV, Inter. 186).....	1			1							31
Hematoma, traumatic, testicle "G" (Class XXV, Inter. 186).....	1			1							20
Hematoma, traumatic, testicle "I" (Class XXV, Inter. 186).....	1			1							5
Hematoma, traumatic, testicle "J" (Class XXV, Inter. 186).....	1			2							29
Hematoma, traumatic, testicle "L" (Class XXV, Inter. 186).....	2	1	1	1	1				1		30
Hematoma, traumatic, thigh "G" (Class XXV, Inter. 186).....	1			1							2
Hematoma, traumatic, thigh "I" (Class XXV, Inter. 186).....	1	3	1	2					1		63
Hematoma, traumatic, thigh "L" (Class XXV, Inter. 186).....	1	2	1	1					1		18
Hemorrhage into eyeball, traumatic "E" (Class XXV, Inter. 186).....	1		3		1				3		22
Hemorrhage into eyeball, traumatic "H" (Class XXV, Inter. 186).....	1		1		1				1		3
Hemorrhage into eyeball, traumatic "J" (Class XXV, Inter. 186).....	1			1							10

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

Diagnoses. a	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Hemorrhage into eyeball, traumatic "R" (Class XXV, Inter. 186)			3	1	1				1		29
Hemorrhage into eyeball, traumatic "L" (Class XXV, Inter. 186)		5	5	5	1				4		55
Hemorrhage into joint, traumatic, ankle "J" (Class XXV, Inter. 186)		1	1	1					1		11
Hemorrhage into joint, traumatic, ankle, "K" (Class XXV, Inter. 186)			1	1							31
Hemorrhage into joint, traumatic, finger, "L" (Class XXV, Inter. 186)		1		1							10
Hemorrhage into joint, traumatic, knee, "G" (Class XXV, Inter. 186)		2	3	2					3		71
Hemorrhage under conjunctiva, traumatic, "G" (Class XXV, Inter. 186)		1		1							1
Hemorrhage under conjunctiva, traumatic, "J" (Class XXV, Inter. 186)		1		1							5
Hemorrhage under conjunctiva, traumatic, "L" (Class XXV, Inter. 186)		10	3	9					3	1	75
Hemorrhage under conjunctiva, traumatic, "L-U" (Class XXV, Inter. 186)		1		1							16
Intracranial injury, "B" (Class XXV, Inter. 186)		3	3		2	1	1		2		183
Intracranial injury, "G" (Class XXV, Inter. 186)	5	39	36	30	11	5	11		23		1,066
Intracranial injury, "H" (Class XXV, Inter. 186)		2	2	1					2	1	90
Intracranial injury, "H-R" (Class XXV, Inter. 186)		1		1							56
Intracranial injury, "J" (Class XXV, Inter. 186)	1	12	7	8	1	1	3		7		251
Intracranial injury, "K" (Class XXV, Inter. 186)	12		5	9	2		1		5		428
Intracranial injury, "L" (Class XXV, Inter. 186)	5	20	27	12	11	2	6		20	1	848
Intracranial injury, "G" (Class XXV, Inter. 186)	1	4	3	3	1	1	1		2		120
Intracranial injury, "H" (Class XXV, Inter. 186)		1		1							5
Intracranial injury, "I" (Class XXV, Inter. 186)		1	1						1	1	264
Intracranial injury, "K" (Class XXV, Inter. 186)			1							1	107
Intracranial injury, "L" (Class XXV, Inter. 186)		1	2	1	1				1		123
Multiple injuries, extreme, "A" (Class XXV, Inter. 186)		1				1					0
Multiple injuries, extreme, (Class XXV, Inter. 186)		3	2			3			2		233
Multiple injuries, extreme, "E-R" (Class XXV, Inter. 186)		2				2					0
Multiple injuries, extreme, "F" (Class XXV, Inter. 186)		5	7	3	1	1			7		173
Multiple injuries, extreme, "G" (Class XXV, Inter. 186)	2	19	24	4	8	8	2		21	2	1,347
Multiple injuries, extreme, "G-R" (Class XXV, Inter. 186)	1	11	7	4	1	8			6		200
Multiple injuries, extreme, "H" (Class XXV, Inter. 186)		8	8	1	4	3			7	1	258
Multiple injuries, extreme, "I" (Class XXV, Inter. 186)		6	5	2		7			2		29
Multiple injuries, extreme, "I-R" (Class XXV, Inter. 186)		2				2					0
Multiple injuries, extreme, "J" (Class XXV, Inter. 186)		1		1							7
Multiple injuries, extreme, "K" (Class XXV, Inter. 186)			1				1				0
Multiple injuries, extreme, "L" (Class XXV, Inter. 186)	4	17	8	6	6	8	1		8		391
Multiple injuries, extreme, "L-R" (Class XXV, Inter. 186)		2				2					0

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Powdered glass, injury from swallowing, "L" (Class XXV, 186).....		3	2	2	2				1		27
Rupture, abdominal, traumatic, "G" (Class XXV, Inter. 186).....		1	2	1	1				1		66
Rupture, abdominal, traumatic, "L" (Class XXV, Inter. 186).....		1	1		1				1		57
Rupture, bladder, traumatic, "G" (Class XXV, Inter. 186).....	1	1	1	1		1			1		46
Rupture, bladder, traumatic, "J" (Class XXV, Inter. 186).....		1	1	1					1		11
Rupture, bladder, traumatic, "L" (Class XXV, Inter. 186).....		1	3		1				3		63
Rupture, globe eye, traumatic, "F" (Class XXV, Inter. 186).....	1			1							57
Rupture, globe eye, traumatic, "G" (Class XXV, Inter. 186).....	1		1	1					1		51
Rupture, globe eye, traumatic, "J" (Class XXV, Inter. 186).....		2	5	1			1		5		127
Rupture, globe eye, traumatic, "K" (Class XXV, Inter. 186).....			4				2		2		92
Rupture, globe eye, traumatic, "L" (Class XXV, Inter. 186).....		5	5	1	1		3		5		126
Rupture, heart, traumatic, "J" (Class XXV, Inter. 186).....	1					1					9
Rupture, intra-articular cartilage, traumatic, "G" (Class XXV, Inter. 186).....		2	1	1					1	1	53
Rupture, intra-articular cartilage, traumatic, "J" (Class XXV, Inter. 186).....		3	2	3					1	1	157
Rupture, intra-articular cartilage, traumatic, "L" (Class XXV, Inter. 186).....	1	2	4	2			1		4		251
Rupture, intestine, traumatic, "L" (Class XXV, Inter. 186).....		1				1					6
Rupture, kidney, traumatic, "G" (Class XXV, Inter. 186).....	1	4	4	1	2				5	1	236
Rupture, kidney, traumatic, "J" (Class XXV, Inter. 186).....		2	6	2	2				4		171
Rupture, kidney, traumatic, "L" (Class XXV, Inter. 186).....	1	1	1		2	1					46
Rupture, ligament, foot, traumatic, "J" (Class XXV, Inter. 186).....		1	1	1					1		1
Rupture, ligament, unqualified, traumatic, "G" (Class XXV, Inter. 186).....		3	2	2					3		70
Rupture, ligament, unqualified, traumatic, "H" (Class XXV, Inter. 186).....	1		1	1					1		43
Rupture, ligament, unqualified, traumatic, "I" (Class XXV, Inter. 186).....		2	2	1	1		1		1		36
Rupture, ligament, unqualified, traumatic, "J" (Class XXV, Inter. 186).....		2	2	1	1				2		41
Rupture, ligament, unqualified, traumatic, "K" (Class XXV, Inter. 186).....			1	1							16
Rupture, ligament, unqualified, traumatic, "L" (Class XXV, Inter. 186).....		7	1	6	1				1		306
Rupture, liver, traumatic, "G" (Class XXV, Inter. 186).....		2				2					2
Rupture, liver, traumatic, "I" (Class XXV, Inter. 186).....		2				2					3
Rupture, liver, traumatic, "L" (Class XXV, Inter. 186).....		2				2					1
Rupture, lung, traumatic, "I" (Class XXV, Inter. 186).....	1					1					0
Rupture, lung, traumatic, "L" (Class XXV, Inter. 186).....	1	1	1	1					1		71
Rupture, mesentery, traumatic, "H" (Class XXV, Inter. 186).....	1	1				1			1		2
Rupture, muscle, shoulder, traumatic, "G" (Class XXV, Inter. 186).....	1	1	1	1					1		15
Rupture, muscle, unqualified, traumatic, "G" (Class XXV, Inter. 186).....		3	5	2	1		1		4		72



TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Rupture, muscle, unqualified, traumatic, "I" (Class XXV, Inter. 186).....		1	3		1				3		44
Rupture, muscle, unqualified, traumatic, "J" (Class XXV, Inter. 186).....		1	1	1	1						9
Rupture, muscle, unqualified, traumatic, "L" (Class XXV, Inter. 186).....	1	6	3	6	1		2		1		132
Rupture, nerve, unqualified, traumatic, "J" (Class XXV, Inter. 186).....		1		1							3
Rupture, perineum, traumatic, "G" (Class XXV, Inter. 186).....	1				1						0
Rupture, scrotum, traumatic, "J" (Class XXV, Inter. 186).....		1					1				62
Rupture, spleen, traumatic, "G" (Class XXV, Inter. 186).....	1	1	1		1		1		1		107
Rupture, tympanum ear, traumatic, "E" (Class XXV, Inter. 186).....	1	6	5	5	1		1		5		117
Rupture, tympanum ear, traumatic, "F" (Class XXV, Inter. 186).....	1	3	5	2	2		1		4		124
Rupture, tympanum ear, traumatic, "G" (Class XXV, Inter. 186).....	1	1	2	3					1		25
Rupture, tympanum ear, traumatic, "J" (Class XXV, Inter. 186).....	1	3	3	4	2				1		46
Rupture, tympanum ear, traumatic, "K" (Class XXV, Inter. 186).....	1		2	2			1				173
Rupture, tympanum ear, traumatic, "L" (Class XXV, Inter. 186).....		9	6	7	2		1		5		103
Rupture, urethra, traumatic, "G" (Class XXV, Inter. 186).....	1				1						0
Rupture, urethra, traumatic, "L" (Class XXV, Inter. 186).....	1				1						0
Smoke inhalation, "C" (Class XXV, Inter. 185B).....		11	4	8	1	3			3		33
Smoke inhalation, "F" (Class XXV, Inter. 185B).....	2			1	1						55
Smoke inhalation, "K" (Class XXV, Inter. 185B).....	5		2	5					2		117
Smoke inhalation, "L" (Class XXV, Inter. 185B).....		10	5	9					6		35
Sprain, ankle, "F" (Class XXV, Inter. 185B).....		2	1	3							11
Sprain, ankle, "G" (Class XXV, Inter. 185B).....	43	693	189	683	68		4	1	163	6	9,124
Sprain, ankle, "G-R" (Class XXV, Inter. 185B).....	1			1							17
Sprain, ankle, "H" (Class XXV, Inter. 185B).....		9	4	10					2	1	171
Sprain, ankle, "I" (Class XXV, Inter. 185B).....	1	23	6	21	2				6	1	316
Sprain, ankle, "J" (Class XXV, Inter. 185B).....	5	338	107	340	23				86	1	3,856
Sprain, ankle, "K" (Class XXV, Inter. 185B).....	7	2	4	8	2				3		172
Sprain, ankle, "L" (Class XXV, Inter. 185B).....	30	358	99	380	33		2		71	1	4,494
Sprain, costal, "J" (Class XXV, Inter. 185B).....		1		1							4
Sprain, elbow, "G" (Class XXV, Inter. 185B).....	4	34	11	38	3				8		469
Sprain, elbow, "I" (Class XXV, Inter. 185B).....		2		2							4
Sprain, elbow, "J" (Class XXV, Inter. 185B).....	2	16	9	19					8		221
Sprain, elbow, "L" (Class XXV, Inter. 185B).....		20	4	18	4				2		295
Sprain, hip, "E" (Class XXV, Inter. 185B).....		1	1				1		1		29
Sprain, hip, "G" (Class XXV, Inter. 185B).....	4	49	32	42	11		12		19	1	1,04
Sprain, hip, "H" (Class XXV, Inter. 185B).....		1	3	1			1		2		74
Sprain, hip, "I" (Class XXV, Inter. 185B).....		3	3	4	1				1		150

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

Diagnosis.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont. Days.
<b>INJURIES—Continued.</b>										
Sprain, lig. "J" (Class XXV, Inter. 185B)	1	10	2	9	2				3	17
Sprain, lig. "K" (Class XXV, Inter. 185B)			1	1						2
Sprain, lig. "L" (Class XXV, Inter. 185B)	10	70	75	75	11		17		53	1 259
Sprain, knee, "G" (Class XXV, Inter. 185B)	1	172	99	175	20		7		75	2 313
Sprain, knee, "H" (Class XXV, Inter. 185B)		1	1	2						2
Sprain, knee, "I" (Class XXV, Inter. 185B)	1	6	1	7					1	15
Sprain, knee, "J" (Class XXV, Inter. 185B)	10	115	66	119	15		4		52	1 204
Sprain, knee, "K" (Class XXV, Inter. 185B)	1		1	1			3		1	16
Sprain, knee, "L" (Class XXV, Inter. 185B)	11	80	49	92	10		1		37	1 134
Sprain, metacarpal, "G" (Class XXV, Inter. 185B)	1	7	2	8	1				1	15
Sprain, metacarpal, "I" (Class XXV, Inter. 185B)		1		1						2
Sprain, metacarpal, "J" (Class XXV, Inter. 185B)	12	1	13							13
Sprain, metacarpal, "L" (Class XXV, Inter. 185B)	14	2	12	2					2	8
Sprain, metatarsal, "G" (Class XXV, Inter. 185B)	33	3	33	1					2	34
Sprain, metatarsal, "I" (Class XXV, Inter. 185B)		6	2	7					1	5
Sprain, metatarsal, "J" (Class XXV, Inter. 185B)	13	3	11	1					3	13
Sprain, metatarsal, "K" (Class XXV, Inter. 185B)			4	2	1				1	8
Sprain, metatarsal, "L" (Class XXV, Inter. 185B)	3	25	8	22	6				8	23
Sprain, multiple "F" (Class XXV, Inter. 185B)	1			1						3
Sprain, multiple "G" (Class XXV, Inter. 185B)	1	1	1	1	1					26
Sprain, multiple "H" (Class XXV, Inter. 185B)	1	1	1	1					1	33
Sprain, multiple "J" (Class XXV, Inter. 185B)	2		2							23
Sprain, multiple "L" (Class XXV, Inter. 185B)	2	1	1	1	1				1	37
Sprain, pelvis, "G" (Class XXV, Inter. 185B)	2		2	1	1				2	125
Sprain, pelvis, "L" (Class XXV, Inter. 185B)	1		1	1						3
Sprain, phalanges (foot), "G" (Class XXV, Inter. 185B)	1	4	1	5					1	24
Sprain, phalanges (foot), "I" (Class XXV, Inter. 185B)	1		1							4
Sprain, phalanges (foot), "J" (Class XXV, Inter. 185B)	3		2	1						40
Sprain, phalanges (foot), "L" (Class XXV, Inter. 185B)	3	1	3						1	57
Sprain, phalanges (hand), "G" (Class XXV, Inter. 185B)	16	3	15	1					3	132
Sprain, phalanges (hand), "H" (Class XXV, Inter. 185B)	1		1							7
Sprain, phalanges (hand), "I" (Class XXV, Inter. 185B)	3	2	3	1					1	14
Sprain, phalanges (hand), "J" (Class XXV, Inter. 185B)	1	12	13							69
Sprain, phalanges (hand), "L" (Class XXV, Inter. 185B)	1	19	20							89
Sprain, shoulder, "F" (Class XXV, Inter. 185B)	1		1							7
Sprain, shoulder, "G" (Class XXV, Inter. 185B)	37	3	36	1					3	251
Sprain, shoulder, "H" (Class XXV, Inter. 185B)	1								1	6
Sprain, shoulder, "J" (Class XXV, Inter. 185B)	2	33	12	37	2				8	414
Sprain, shoulder, "K" (Class XXV, Inter. 185B)	1				1					14
Sprain, shoulder, "L" (Class XXV, Inter. 185B)	3	25	9	25	6				6	431

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

Diagnoses.	Rem.	A.	R.A.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Sprain, vertebral, "E" (Class XXV, Inter. 185B)		1	2	1	1				1		34
Sprain, vertebral, "G" (Class XXV, Inter. 185B)	8	27	17	30	6		3		13		519
Sprain, vertebral, "H" (Class XXV, Inter. 185B)		4		3					1		23
Sprain, vertebral, "I" (Class XXV, Inter. 185B)		1	1	1	1						60
Sprain, vertebral, "J" (Class XXV, Inter. 185B)	1	7	7	9	2				4		219
Sprain, vertebral, "K" (Class XXV, Inter. 185B)	2		4	1	2		2		1		124
Sprain, vertebral, "L" (Class XXV, Inter. 185B)	8	43	22	39	10		2		21	1	756
Sprain, wrist, "G" (Class XXV, Inter. 185B)	1	165	34	160	20				19	1	1,520
Sprain, wrist, "H" (Class XXV, Inter. 185B)		16	1	14	1				2		82
Sprain, wrist, "I" (Class XXV, Inter. 185B)		10		10							85
Sprain, wrist, "J" (Class XXV, Inter. 185B)	1	34	13	32	4		1		11		344
Sprain, wrist, "K" (Class XXV, Inter. 185B)	1			1							9
Sprain, wrist, "L" (Class XXV, Inter. 185B)	1	72	16	70	7				10	2	824
Strain, abdominal, "G" (Class XXV, Inter. 186)		6	7	7	3				3		168
Strain, abdominal, "H" (Class XXV, Inter. 186)		1		1							11
Strain, abdominal, "I" (Class XXV, Inter. 186)		9	3	6	2				4		38
Strain, abdominal, "L" (Class XXV, Inter. 186)	4	47	28	43	7		1	1	27		724
Strain, ankle, "G" (Class XXV, Inter. 186)		6	2	4	2				2		44
Strain, ankle, "I" (Class XXV, Inter. 186)		4	2	4	1				1		19
Strain, ankle, "L" (Class XXV, Inter. 186)			1	1							3
Strain, arm, "G" (Class XXV, Inter. 186)		3	3	3	2				1		38
Strain, arm, "L" (Class XXV, Inter. 186)		2		2							4
Strain, back, "G" (Class XXV, Inter. 186)	3	60	26	55	11		5		17	1	1,039
Strain, back, "H" (Class XXV, Inter. 186)	1	3		4							69
Strain, back, "I" (Class XXV, Inter. 186)	1			1							12
Strain, back, "J" (Class XXV, Inter. 186)		20	12	20	4				7	1	256
Strain, back, "K" (Class XXV, Inter. 186)			2	2							99
Strain, back, "L" (Class XXV, Inter. 186)	13	152	64	157	21		6	1	42	2	2,241
Strain, chest, "L" (Class XXV, Inter. 186)		10	2	11	1						137
Strain, eye, "J" (Class XXV, Inter. 186)		1		1							11
Strain, foot, "G" (Class XXV, Inter. 186)		1	1	1			1				4
Strain, foot, "J" (Class XXV, Inter. 186)		2	1	2					1		18
Strain, foot, "K" (Class XXV, Inter. 186)			1	1							11
Strain, foot, "L" (Class XXV, Inter. 186)	2	18	10	16	4		2		7	1	225
Strain, forearm, "G" (Class XXV, Inter. 186)	1	2		2	1						86
Strain, hand, "J" (Class XXV, Inter. 186)		1		1							
Strain, hand, "L" (Class XXV, Inter. 186)		1		1							8
Strain, hip, "G" (Class XXV, Inter. 186)	1	3	1	2					3		118
Strain, hip, "J" (Class XXV, Inter. 186)		1		1							3
Strain, hip, "L" (Class XXV, Inter. 186)	1	4	1	5					1		80

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Strain, knee, "G" (Class XXV, Inter. 186)		3		3							14
Strain, knee, "J" (Class XXV, Inter. 186)		7	2	5	2				2		91
Strain, knee, "L" (Class XXV, Inter. 186)		1	2	1					2		37
Strain, leg, "G" (Class XXV, Inter. 186)		4		3						1	15
Strain, leg, "H" (Class XXV, Inter. 186)		1		1							3
Strain, leg, "I" (Class XXV, Inter. 186)		1		1							1
Strain, leg, "J" (Class XXV, Inter. 186)		5		4					1		22
Strain, leg, "L" (Class XXV, Inter. 186)	1	5	1	5	1		1				76
Strain, neck, "G" (Class XXV, Inter. 186)		1		1							3
Strain, neck, "J" (Class XXV, Inter. 186)		6	1	5					2		22
Strain, neck, "L" (Class XXV, Inter. 186)		5		5							51
Strain, shoulder, "G" (Class XXV, Inter. 186)		4	2	3	1				2		13
Strain, shoulder, "J" (Class XXV, Inter. 186)		4	2	4					2		16
Strain, shoulder, "L" (Class XXV, Inter. 186)		10	6	11	2				3		167
Strain, thigh, "G" (Class XXV, Inter. 186)	1	7	2	6	2				2		75
Strain, thigh, "J" (Class XXV, Inter. 186)		8	3	8	1				2		60
Strain, thigh, "L" (Class XXV, Inter. 186)	1	6	5	9	1				2		133
Strain, unqualified, "J" (Class XXV, Inter. 186)		1		1							2
Strain, unqualified, "L" (Class XXV, Inter. 186)	2	1		3							12
Strain, wrist, "G" (Class XXV, Inter. 186)		2		2							6
Strain, wrist, "L" (Class XXV, Inter. 186)		1		1							8
Strangulation, "A" (Class XXV, Inter. 186)		5				5					0
Strangulation, "L" (Class XXV, Inter. 186)		4		1		3					8
Submersion, (nonfatal), "D" (Class XXV, Inter. 169A)		26	7	28	1				4		86
Submersion, (nonfatal), "J" (Class XXV, Inter. 169A)		3	2	3	1				1		7
Submersion, (nonfatal), "L" (Class XXV, Inter. 169A)		1		1							9
Sunburn, arm, "J" (Class XXV, Inter. 167)		5		5							12
Sunburn, arm, "L" (Class XXV, Inter. 167)		4	2	6							30
Sunburn, back, "J" (Class XXV, Inter. 167)		1		1							2
Sunburn, back, "L" (Class XXV, Inter. 167)		6		6							19
Sunburn, face, "L" (Class XXV, Inter. 167)		2		2							5
Sunburn, foot, "J" (Class XXV, Inter. 167)		1		1							7
Sunburn, foot, "L" (Class XXV, Inter. 167)		3		3							29
Sunburn, hand, "L" (Class XXV, Inter. 167)		1		1							4
Sunburn, leg, "J" (Class XXV, Inter. 167)		3		3							13
Sunburn, leg, "L" (Class XXV, Inter. 167)		8	1	8					1		33
Sunburn, multiple, "J" (Class XXV, Inter. 167)		9		9							34
Sunburn, multiple, "L" (Class XXV, Inter. 167)		24	3	24					3		66
Sunburn, shoulder, "J" (Class XXV, Inter. 167)		5		5							15
Sunburn, shoulder, "L" (Class XXV, Inter. 167)		18		18							37

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Sunburn, thigh, "L" (Class XXV, Inter. 167)		1		1							1
Sunburn, unqualified, "L" (Class XXV, Inter. 167)		4		4							12
Sunburn, upper extremity, "J" (Class XXV, Inter. 167)		10	1	11							25
Sunburn, upper extremity, "L" (Class XXV, Inter. 167)		13	3	16							64
Stroke, "J" (Class XXV, Inter. 179B)		2	2	2					2		26
Stroke, "L" (Class XXV, Inter. 179B)		17	2	16	1				2		57
Synovitis, ankle, traumatic, "G" (Class XXV, Inter. 186)	3	1	2	5			1				66
Synovitis, ankle, traumatic, "I" (Class XXV, Inter. 186)		1	2	1					2		46
Synovitis, ankle, traumatic, "L" (Class XXV, Inter. 186)		4	1	4					1		66
Synovitis, elbow, traumatic, "G" (Class XXV, Inter. 186)		5	7	2	2		1		7		167
Synovitis, elbow, traumatic, "J" (Class XXV, Inter. 186)		2		2							14
Synovitis, hip, traumatic, "G" (Class XXV, Inter. 186)		7		4	1				2		68
Synovitis, knee, traumatic, "G" (Class XXV, Inter. 186)	21	118	128	116	22		22	1	101	5	4,731
Synovitis, knee, traumatic, "H" (Class XXV, Inter. 186)		2	1	1	1				1		4
Synovitis, knee, traumatic, "I" (Class XXV, Inter. 186)		9	2	6					5		179
Synovitis, knee, traumatic, "J" (Class XXV, Inter. 186)	8	56	57	56	6		10		47	2	1,728
Synovitis, knee, traumatic, "K" (Class XXV, Inter. 186)	2		8	4					6		244
Synovitis, knee, traumatic, "L" (Class XXV, Inter. 186)	13	78	76	80	14		9		59	5	4,123
Synovitis, metatarsal, traumatic, "I" (Class XXV, Inter. 186)			1						1		9
Synovitis, metatarsal, traumatic, "J" (Class XXV, Inter. 186)		2	1	1	1				1		9
Synovitis, metatarsal, traumatic, "L" (Class XXV, Inter. 186)	1				1						63
Synovitis, phalangeal (foot) traumatic, "L" (Class XXV, Inter. 186)		1		1							6
Synovitis, phalangeal (hand) traumatic, "H" (Class XXV, Inter. 186)	1	1	2	2			1		1		133
Synovitis, phalangeal (hand) traumatic, "I" (Class XXV, Inter. 186)		1	2	1	1				1		25
Synovitis, phalangeal (hand) traumatic, "L" (Class XXV, Inter. 186)		3	2	2					3		59
Synovitis, shoulder, traumatic, "G" (Class XXV, Inter. 186)	2	2	2	2	1				1		44
Synovitis, shoulder, traumatic, "J" (Class XXV, Inter. 186)	1			1							46
Synovitis, shoulder, traumatic, "L" (Class XXV, Inter. 186)	1	2			1		1		1		25
Synovitis, vertebral, traumatic, "G" (Class XXV, Inter. 186)	2	2	1	2					1		24
Synovitis, wrist, traumatic, "G" (Class XXV, Inter. 186)	1	2	2						1		49
Synovitis, wrist, traumatic, "H" (Class XXV, Inter. 186)	1	1		1					1		12
Synovitis, wrist, traumatic, "J" (Class XXV, Inter. 186)	1			1							13
Synovitis, wrist, traumatic, "L" (Class XXV, Inter. 186)	3	2	3	1					1		76
Thermic fever, "L" (Class XXV, Inter. 179A)		10	8	7	3				3		52
Torsion, spermatic cord, traumatic, "G" (Class XXV, Inter. 186)	1			1							5
Torsion, spermatic cord, traumatic, "L" (Class XXV, Inter. 186)		1	2	1	1				1		6
Trench foot, "K" (Class XXV, Inter. 178)	2		14	6	1				9		461

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Trench foot, "L" (Class XXV, Inter. 178).....	2			1	1						22
Wound, incised, abdominal, "B" (Class XXV, Inter. 171).....		1				1					4
Wound, incised, abdominal, "F" (Class XXV, Inter. 171).....		1		1							12
Wound, incised, abdominal, "H" (Class XXV, Inter. 171).....	1				1						22
Wound, incised, abdominal, "L" (Class XXV, Inter. 171).....		11	3	12					1	1	119
Wound, incised, ankle, "B" (Class XXV, Inter. 171).....		1	1	1					1		35
Wound, incised, ankle, "L" (Class XXV, Inter. 171).....		6		5	1						51
Wound, incised, arm, "B" (Class XXV, Inter. 171).....		1		1							3
Wound, incised, arm, "G" (Class XXV, Inter. 171).....		1	1	1					1		24
Wound, incised, arm, "L" (Class XXV, Inter. 171).....		6	1	5					1	1	145
Wound, incised, back, "B" (Class XXV, Inter. 171).....		2	1	2					1		55
Wound, incised, back, "L" (Class XXV, Inter. 171).....		3		3							8
Wound, incised, ear, "G" (Class XXV, Inter. 171).....		1		1							6
Wound, incised, elbow, "H" (Class XXV, Inter. 171).....		1	1	1					1		13
Wound, incised, eye and adnexa, "F" (Class XXV, Inter. 171).....		2	2	2	1				1		10
Wound, incised, eye and adnexa, "G" (Class XXV, Inter. 171).....		1	1	1					1		9
Wound, incised, eye and adnexa, "H" (Class XXV, Inter. 171).....		1	2	1	1				1		39
Wound, incised, eye and adnexa, "J" (Class XXV, Inter. 171).....		1		1							3
Wound, incised, eye and adnexa, "K" (Class XXV, Inter. 171).....			2		1				1		23
Wound, incised, eye and adnexa, "L" (Class XXV, Inter. 171).....	2	6	11	6	1		2		9	1	417
Wound, incised, face, "G" (Class XXV, Inter. 171).....		2		2							13
Wound, incised, face, "GR" (Class XXV, Inter. 171).....		1		1							4
Wound, incised, face, "H" (Class XXV, Inter. 171).....		1		1							2
Wound, incised, face, "J" (Class XXV, Inter. 171).....		1		1							3
Wound, incised, face, "L" (Class XXV, Inter. 171).....		6		6							33
Wound, incised, finger, "G" (Class XXV, Inter. 171).....		2		2							26
Wound, incised, finger, "H" (Class XXV, Inter. 171).....	4	24	7	25	3				7		516
Wound, incised, finger, "H-R" (Class XXV, Inter. 171).....		1		1							1
Wound, incised, finger, "I" (Class XXV, Inter. 171).....	1	10	3	10	1				3		174
Wound, incised, finger, "J" (Class XXV, Inter. 171).....		2	1	2					1		44
Wound, incised, finger, "K" (Class XXV, Inter. 171).....			1				1				32
Wound, incised, finger, "L" (Class XXV, Inter. 171).....	3	72	20	64	2		6		20	3	1,113
Wound, incised, foot, "G" (Class XXV, Inter. 171).....		4	1	4					1		26
Wound, incised, foot, "H" (Class XXV, Inter. 171).....		2		2							53
Wound, incised, foot, "I" (Class XXV, Inter. 171).....		1		1							8
Wound, incised, foot, "L" (Class XXV, Inter. 171).....	3	31	8	33	1				8		491
Wound, incised, forearm, "B" (Class XXV, Inter. 171).....		4	2	3					2		51
Wound, incised, forearm, "G" (Class XXV, Inter. 171).....		4		4							14
Wound, incised, forearm, "H" (Class XXV, Inter. 171).....		1		1							10
Wound, incised, forearm, "K" (Class XXV, Inter. 171).....			2		1				1		6

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Wound, incised, forearm, "L" (Class XXV, Inter. 171)		14	6	14					4	2	467
Wound, incised, hand "B" (Class XXV, Inter. 171)		1		1							15
Wound, incised, hand "G" (Class XXV, Inter. 171)		6	4	6	1				3		240
Wound, incised, hand "H" (Class XXV, Inter. 171)	1	7	2	7	1		1		1		140
Wound, incised, hand "J" (Class XXV, Inter. 171)		2		2							13
Wound, incised, hand "K" (Class XXV, Inter. 171)	1		1				1		1		69
Wound, incised, hand "L" (Class XXV, Inter. 171)	4	64	20	62	2		5		17	2	1,150
Wound, incised, head, "B" (Class XXV, Inter. 171)		1				1					1
Wound, incised, head, "G" (Class XXV, Inter. 171)		15	2	13	2				2		88
Wound, incised, head, "H" (Class XXV, Inter. 171)		3		2					1		11
Wound, incised, head, "J" (Class XXV, Inter. 171)		3		3							14
Wound, incised, head, "L" (Class XXV, Inter. 171)		1		1							3
Wound, incised, head, "J" (Class XXV, Inter. 171)		25	10	26	1	1			7		290
Wound, incised, jaw, "L" (Class XXV, Inter. 171)		1	2	2			1				167
Wound, incised, knee, "G" (Class XXV, Inter. 171)		7	2	8					1		102
Wound, incised, knee, "J" (Class XXV, Inter. 171)		1		1							14
Wound, incised, knee, "L" (Class XXV, Inter. 171)		7	5	7	1		1		3		124
Wound, incised, leg, "G" (Class XXV, Inter. 171)		13	7	14					6		230
Wound, incised, leg, "K" (Class XXV, Inter. 171)			2		1				1		42
Wound, incised, leg, "L" (Class XXV, Inter. 171)		9	3	9	1				2		109
Wound, incised, mouth, "G" (Class XXV, Inter. 171)		2		2							11
Wound, incised, mouth, "G-R" (Class XXV, Inter. 171)		1		1							4
Wound, incised, mouth, "L" (Class XXV, Inter. 171)		1		1							9
Wound, incised, multiple, "A" (Class XXV, Inter. 171)		1			1						0
Wound, incised, multiple, "K" (Class XXV, Inter. 171)			1						1		3
Wound, incised, multiple, "L" (Class XXV, Inter. 171)	1	2	2	2	1				2		64
Wound, incised, neck, "A" (Class XXV, Inter. 171)	1	4	5	1	1	2	1		5		204
Wound, incised, neck, "B" (Class XXV, Inter. 171)		2	1	1	1				1		11
Wound, incised, neck, "L" (Class XXV, Inter. 171)		7	3	6		2			2		37
Wound, incised, nose, "B" (Class XXV, Inter. 171)		1		1							2
Wound, incised, penis, "L" (Class XXV, Inter. 171)		1	1	1					1		7
Wound, incised, scapula, "L" (Class XXV, Inter. 171)		2		2							7
Wound, incised, shoulder, "B" (Class XXV, Inter. 171)		3		3							27
Wound, incised, shoulder, "H" (Class XXV, Inter. 171)		1		1							4
Wound, incised, shoulder, "L" (Class XXV, Inter. 171)		5		5							37
Wound, incised, thigh, "B" (Class XXV, Inter. 171)		2		2							19
Wound, incised, thigh, "G" (Class XXV, Inter. 171)		2		2							48
Wound, incised, thigh, "J" (Class XXV, Inter. 171)		1		1							4
Wound, incised, thigh, "L" (Class XXV, Inter. 171)	1	14	2	13	1				2	1	227
Wound, incised, thorax, "B" (Class XXV, Inter. 171)		8	4	4	2	2			4		71



TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Wound, incised, thorax, "L" (Class XXV Inter. 171)		6	3	5	1				2	1	101
Wound, incised, toe, "G" (Class XXV, Inter. 171)		1		1							30
Wound, incised, toe, "L" (Class XXV, Inter. 171)		4	2	5					1		62
Wound, incised, urethra, "L" (Class XXV, Inter. 171)		1								1	3
Wound, incised, wrist, "A" (Class XXV, Inter. 171)	1	1	1	2					1		30
Wound, incised, wrist, "G" (Class XXV, Inter. 171)		4	1	4					1		54
Wound, incised, wrist, "H" (Class XXV, Inter. 171)		1		1							10
Wound, incised, wrist, "K" (Class XXV, Inter. 171)		1		1							10
Wound, incised, wrist, "L" (Class XXV, Inter. 171)	2	13	1	15					1		175
Wound, lacerated, abdominal, "E" (Class XXV, Inter. 186)		1	1			2					4
Wound, lacerated, abdominal, "F" (Class XXV, Inter. 186)	1	1	1	1		1			1		36
Wound, lacerated, abdominal, "K" (Class XXV, Inter. 186)	13		40	15	2		15		21		1,535
Wound, lacerated, abdominal, "I," (Class XXV, Inter. 186)		3	3	1	1				3	1	53
Wound, lacerated, ankle, "E" (Class XXV, Inter. 186)	1	1	1	1			1		1		185
Wound, lacerated, ankle, "F" (Class XXV, Inter. 186)		1							1		0
Wound, lacerated, ankle, "G" (Class XXV, Inter. 186)		1	1	1					1		57
Wound, lacerated, ankle, "H" (Class XXV, Inter. 186)		1		1							4
Wound, lacerated, ankle, "I" (Class XXV, Inter. 186)		2	1	2					1		46
Wound, lacerated, ankle, "J" (Class XXV, Inter. 186)	1	1	1	2	1						11
Wound, lacerated, ankle, "K" (Class XXV, Inter. 186)	26		60	22	2		16		43	3	3,062
Wound, lacerated, ankle, "L" (Class XXV, Inter. 186)	1	4	2	6					1		110
Wound, lacerated, arm, "B" (Class XXV, Inter. 186)		1	1		1				1		124
Wound, lacerated, arm, "E" (Class XXV, Inter. 186)		3	10	4					7	2	390
Wound, lacerated, arm, "F" (Class XXV, Inter. 186)		3	2	2	1				2		79
Wound, lacerated, arm, "G" (Class XXV, Inter. 186)		1	2	1		1			1		161
Wound, lacerated, arm, "H" (Class XXV, Inter. 186)	1	1	2	2					1	1	123
Wound, lacerated, arm, "K" (Class XXV, Inter. 186)	127		211	50	29	1	68	1	180	9	15,369
Wound, lacerated, arm, "L" (Class XXV, Inter. 186)	1	12	7	13			2		4	1	379
Wound, lacerated, back, "K" (Class XXV, Inter. 186)	12		48	16	2	2	24		16		2,470
Wound, lacerated, back, "L" (Class XXV, Inter. 186)		2	2	2					2		16
Wound, lacerated, ear, "G" (Class XXV, Inter. 186)		6	1	6					1		68
Wound, lacerated, ear, "H" (Class XXV, Inter. 186)		1		1							2
Wound, lacerated, ear, "I" (Class XXV, Inter. 186)	1			1							4
Wound, lacerated, ear, "L" (Class XXV, Inter. 186)		6		6							48
Wound, lacerated, elbow, "E" (Class XXV, Inter. 186)		1	1	1					1		11
Wound, lacerated, elbow, "G" (Class XXV, Inter. 186)		5		5							36
Wound, lacerated, elbow, "GR" (Class XXV, Inter. 186)		1	1	1					1		11
Wound, lacerated, elbow, "H" (Class XXV, Inter. 186)		1	1		1				1		45
Wound, lacerated, elbow, "K" (Class XXV, Inter. 186)	17		33	8	7		10		25		1,715
Wound, lacerated, elbow, "L" (Class XXV, Inter. 186)		5		5							48



TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Wound, lacerated, eye and adnexa, "E" (Class XXV, Inter. 186.)	1	3	9	3			2		6	2	573
Wound, lacerated, eye and adnexa, "F" (Class XXV, Inter. 186.)		3	6	4			1		4		132
Wound, lacerated, eye and adnexa, "G" (Class XXV, Inter. 186.)	1	9	3	7	2				4		44
Wound, lacerated, eye and adnexa, "H" (Class XXV, Inter. 186.)		2	2	1			1		2		41
Wound, lacerated, eye and adnexa, "H-R" (Class XXV, Inter. 186.)		1		1							7
Wound, lacerated, eye and adnexa, "I" (Class XXV, Inter. 186.)		1	1						1	1	8
Wound, lacerated, eye and adnexa, "J" (Class XXV, Inter. 186.)		2		2							5
Wound, lacerated, eye and adnexa, "K" (Class XXV, Inter. 186.)	15		63	8	6		24		39	1	2,718
Wound, lacerated, eye and adnexa, "L" (Class XXV, Inter. 186.)	5	42	24	40	5		4		20	2	1,259
Wound, lacerated, face, "E" (Class XXV, Inter. 186.)	1	1		1		1					9
Wound, lacerated, face, "F" (Class XXV, Inter. 186.)		5	1	5					1		98
Wound, lacerated, face, "G" (Class XXV, Inter. 186.)	1	27	8	28	1				6	1	295
Wound, lacerated, face, "G-R" (Class XXV, Inter. 186.)	2	4	1	4	2				1		105
Wound, lacerated, face, "H" (Class XXV, Inter. 186.)	1	5	5	8	1				2		135
Wound, lacerated, face, "I" (Class XXV, Inter. 186.)		2		2							7
Wound, lacerated, face, "J" (Class XXV, Inter. 186.)		6	1	6					1		26
Wound, lacerated, face, "K" (Class XXV, Inter. 186.)	10		41	10	6	2	13		20		3,202
Wound, lacerated, face, "L" (Class XXV, Inter. 186.)		47	14	47	4				10		390
Wound, lacerated, finger, "E" (Class XXV, Inter. 186.)	4	9	4	12	1		1		3		331
Wound, lacerated, finger, "F" (Class XXV, Inter. 186.)		7	4	6					5		187
Wound, lacerated, finger, "G" (Class XXV, Inter. 186.)	2	9	5	8	2				6		248
Wound, lacerated, finger, "H" (Class XXV, Inter. 186.)	13	182	48	184	8		2		45	4	4,076
Wound, lacerated, finger, "I" (Class XXV, Inter. 186.)	5	109	29	111	3				27	2	1,944
Wound, lacerated, finger, "J" (Class XXV, Inter. 186.)		10	1	9	1				1		61
Wound, lacerated, finger, "K" (Class XXV, Inter. 186.)	13		42	10	4		12		29		1,332
Wound, lacerated, finger, "L" (Class XXV, Inter. 186.)	12	154	35	158	5		2		30	6	2,663
Wound, lacerated, foot, "B" (Class XXV, Inter. 186.)			1						1		0
Wound, lacerated, foot, "C" (Class XXV, Inter. 186.)			1						1		13
Wound, lacerated, foot, "E" (Class XXV, Inter. 186.)	9	7	16	9	4		3		16		1,146
Wound, lacerated, foot, "G" (Class XXV, Inter. 186.)		8	2	9					1		275
Wound, lacerated, foot, "H" (Class XXV, Inter. 186.)	13			11	1		1				245
Wound, lacerated, foot, "I" (Class XXV, Inter. 186.)	1	5	3	6			1		2		449
Wound, lacerated, foot, "J" (Class XXV, Inter. 186.)		11	1	10					1	1	149
Wound, lacerated, foot, "K" (Class XXV, Inter. 186.)	60		132	45	14		45		85	3	6,905
Wound, lacerated, foot, "L" (Class XXV, Inter. 186.)	6	40	13	41	3		4		10	1	939
Wound, lacerated, forearm, "B" (Class XXV, Inter. 186.)		1	1	1					1		229

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Wound, lacerated, forearm, "E" (Class XXV, Inter. 186)	3	4	7	4	3		2		5		199
Wound, lacerated, forearm, "F" (Class XXV, Inter. 186)		3		3							20
Wound, lacerated, forearm, "G" (Class XXV, Inter. 186)		7	1	7					1		100
Wound, lacerated, forearm, "H" (Class XXV, Inter. 186)		4	2	1					5		130
Wound, lacerated, forearm, "I" (Class XXV, Inter. 186)		1	1	1					1		27
Wound, lacerated, forearm, "J" (Class XXV, Inter. 186)		1		1							3
Wound, lacerated, forearm, "K" (Class XXV, Inter. 186)	43		114	22	8		48	1	77	1	6,973
Wound, lacerated, forearm, "L" (Class XXV, Inter. 186)	3	23	9	23	2		2		7	1	407
Wound, lacerated, hand, "E" (Class XXV, Inter. 186)	5	11	19	9	3		6		16	1	796
Wound, lacerated, hand, "F" (Class XXV, Inter. 186)		3	1	3					1		64
Wound, lacerated, hand, "G" (Class XXV, Inter. 186)	5	18	7	19	3				8		342
Wound, lacerated, hand, "GR" (Class XXV, Inter. 186)		1		1							1
Wound, lacerated, hand, "H" (Class XXV, Inter. 186)	9	36	28	40	2		5		24	2	1,521
Wound, lacerated, hand, "HR" (Class XXV, Inter. 186)	1			1							38
Wound, lacerated, hand, "I" (Class XXV, Inter. 186)	1	26	11	29			2		6	1	964
Wound, lacerated, hand, "J" (Class XXV, Inter. 186)		6	1	7							73
Wound, lacerated, hand, "K" (Class XXV, Inter. 186)	62		142	49	13		71		71		5,930
Wound, lacerated, hand, "L" (Class XXV, Inter. 186)	6	105	42	107	6		5		33	2	2,467
Wound, lacerated, head, "A" (Class XXV, Inter. 186)		3				3					0
Wound, lacerated, head, "B" (Class XXV, Inter. 186)		2	1	2					1		3
Wound, lacerated, head, "E" (Class XXV, Inter. 186)		5	2	4					3		34
Wound, lacerated, head, "F" (Class XXV, Inter. 186)		5		3		1			1		19
Wound, lacerated, head, "G" (Class XXV, Inter. 186)	5	110	29	111	8				21	1	1,122
Wound, lacerated, head, "GR" (Class XXV, Inter. 186)		4	1	3	1				1		38
Wound, lacerated, head, "H" (Class XXV, Inter. 186)		15	4	14					5		310
Wound, lacerated, head, "HR" (Class XXV, Inter. 186)		1		1							13
Wound, lacerated, head, "I" (Class XXV, Inter. 186)	1	17	1	15	2				2		30
Wound, lacerated, head, "J" (Class XXV, Inter. 186)		15	3	14	2				2		71
Wound, lacerated, head, "K" (Class XXV, Inter. 186)	30	2	86	25	8	2	29		53	1	3,361
Wound, lacerated, head, "L" (Class XXV, Inter. 186)	3	159	43	161	8		1		35		1,722
Wound, lacerated, hip, "E" (Class XXV, Inter. 186)		1	1	1					1		16
Wound, lacerated, hip, "J" (Class XXV, Inter. 186)		1		1							10
Wound, lacerated, hip, "K" (Class XXV, Inter. 186)	31		60	9	4		17		59	2	4,045
Wound, lacerated, hip, "L" (Class XXV, Inter. 186)	1	1	1	3							57
Wound, lacerated, intestines, "K" (Class XXV, Inter. 186)			4	1	1				2		56
Wound, lacerated, jaw, "E" (Class XXV, Inter. 186)	1	1	1	1	1				1		145
Wound, lacerated, jaw, "GR" (Class XXV, Inter. 186)			1	1							1
Wound, lacerated, jaw, "I" (Class XXV, Inter. 186)		1		1							1
Wound, lacerated, jaw, "J" (Class XXV, Inter. 186)		1		1							25
Wound, lacerated, jaw, "K" (Class XXV, Inter. 186)	9		25	6			9		19		793

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Wound, lacerated, jaw. "L" (Class XXV, Inter. 186)		3	3	2					3	1	61
Wound, lacerated, knee. "E" (Class XXV, Inter. 186)		3	6	3	1		1		3	1	216
Wound, lacerated, knee. "F" (Class XXV, Inter. 186)		1	1	1					1		44
Wound, lacerated, knee. "G" (Class XXV, Inter. 186)	1	44	9	46	1				5	1	842
Wound, lacerated, knee "H" (Class XXV, Inter. 186)		5	1	5					1		58
Wound, lacerated, knee "I" (Class XXV, Inter. 186)		1		1							5
Wound, lacerated, knee "J" (Class XXV, Inter. 186)		3	1	3					1		46
Wound, lacerated, knee "K" (Class XXV, Inter. 186)	43		130	34	12		33	2	89	3	6,593
Wound, lacerated, knee "L" (Class XXV, Inter. 186)	1	11	3	12					2	1	261
Wound, lacerated, leg "E" (Class XXV, Inter. 186)	2	6	9	11	2				4		640
Wound, lacerated, leg "F" (Class XXV, Inter. 186)	1	7	4	7	1				4		237
Wound, lacerated, leg "G" (Class XXV, Inter. 186)	6	59	13	61	4		1		10	2	946
Wound, lacerated, leg "H" (Class XXV, Inter. 186)	2	6	4	8	1				3		358
Wound, lacerated, leg "I" (Class XXV, Inter. 186)		2		2							21
Wound, lacerated, leg "J" (Class XXV, Inter. 186)	1	9		10							91
Wound, lacerated, leg "K" (Class XXV, Inter. 186)	172	1	387	96	42		115		298	9	23,073
Wound, lacerated, leg "L" (Class XXV, Inter. 186)	2	36	17	40	2		1		12		1,358
Wound, lacerated, lower extrem- ity "E" (Class XXV, Inter. 186)	1		1	1					1		22
Wound, lacerated, lower extrem- ity "G" (Class XXV, Inter. 186)			3	1	1				1		83
Wound, lacerated, lower extrem- ity "K" (Class XXV, Inter. 186)	24		41	5	17		5		38		3,514
Wound, lacerated, lung, "F" (Class XXV, Inter. 186)		1					1				0
Wound, lacerated, mouth "F" (Class XXV, Inter. 186)			1	1							7
Wound, lacerated, mouth "G" (Class XXV, Inter. 186)	1	11	2	10	1				3		44
Wound, lacerated, mouth "GR" (Class XXV, Inter. 186)		3	2	4					2		31
Wound, lacerated, mouth "H" (Class XXV, Inter. 186)		2		2							5
Wound, lacerated, mouth "I" (Class XXV, Inter. 185)		1		1							9
Wound, lacerated, mouth "J" (Class XXV, Inter. 186)		2		2							15
Wound, lacerated, mouth "K" (Class XXV, Inter. 186)	3		7	5			1		4		203
Wound, lacerated, mouth "L" (Class XXV, Inter. 186)		19	6	18	1				6		91
Wound, lacerated, multiple "E" (Class XXV, Inter. 186)		7	17	4	2	1			16	1	484
Wound, lacerated, multiple "F" (Class XXV, Inter. 186)		6	10	4	1	1			9	1	344
Wound, lacerated, multiple "G" (Class XXV, Inter. 186)		5	4	6	1				2		82
Wound, lacerated, multiple "GR" (Class XXV, Inter. 186)	1		1	1					1		19
Wound, lacerated, multiple "H" (Class XXV, Inter. 186)		3		2					1		32
Wound, lacerated, multiple "I" (Class XXV, Inter. 186)		1							1		0
Wound, lacerated, multiple "K" (Class XXV, Inter. 186)	158	2	355	71	14		149		273	8	17,312
Wound, lacerated, multiple "L" (Class XXV, Inter. 186)	1	14	10	13	4				8		567
Wound, lacerated, neck "A" (Class XXV, Inter. 186)		1	1	1	1						32
Wound, lacerated, neck "FR" (Class XXV, Inter. 186)		1		1							5
Wound, lacerated, neck "GR" (Class XXV, Inter. 186)		1					1				0

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Wound, lacerated, neck "K" (Class XXV, Inter. 186)	3		23	5	1		8		12		606
Wound, lacerated, nose "G" (Class XXV, Inter. 186)		4	1	3	1				1		36
Wound, lacerated, nose "K" (Class XXV, Inter. 186)	1		2	1					2		127
Wound, lacerated, nose "I" (Class XXV, Inter. 186)		7	4	6	1				4		16
Wound, lacerated, pelvic "G" (Class XXV, Inter. 186)	1			1							52
Wound, lacerated, pelvic "H" (Class XXV, Inter. 186)			1		1						21
Wound, lacerated, pelvic "K" (Class XXV, Inter. 186)			3		1		1		1		4
Wound, lacerated, pelvic "I" (Class XXV, Inter. 186)	1	1	1	1	1				1		6
Wound, lacerated, penis "I" (Class XXV, Inter. 186)		1	1		2						40
Wound, lacerated, penis "K" (Class XXV, Inter. 186)			2		1		1				73
Wound, lacerated, penis "I" (Class XXV, Inter. 186)			3	3	4				2		81
Wound, lacerated, rectum "K" (Class XXV, Inter. 186)			1				1				19
Wound, lacerated, rectum "I" (Class XXV, Inter. 186)		1		1							10
Wound, lacerated, scapula "K" (Class XXV, Inter. 186)	3		11	3	2		2		7		361
Wound, lacerated, scapula "I" (Class XXV, Inter. 186)	1				1						9
Wound, lacerated, shoulder "E" (Class XXV, Inter. 186)		1	1						1	1	44
Wound, lacerated, shoulder "H" (Class XXV, Inter. 186)		1		1							21
Wound, lacerated, shoulder "I" (Class XXV, Inter. 186)			1	1							111
Wound, lacerated, shoulder "J" (Class XXV, Inter. 186)		1	1	1			1				32
Wound, lacerated, shoulder "K" (Class XXV, Inter. 186)	55		129	41	8	1	50		81	3	6,442
Wound, lacer. ted, shoulder "I" (Class XXV, Inter. 186)		4	3	4	1				2		40
Wound, lacerated, testicle "K" (Class XXV, Inter. 186)			2	1					1		125
Wound, lacerated, thigh "E" (Class XXV, Inter. 186)	2	10	10	11	3		1		5	1	614
Wound, lacerated, thigh "G" (Class XXV, Inter. 186)	1	5		5					1		62
Wound, lacerated, thigh "G-R" (Class XXV, Inter. 186)		3	1	2					2		94
Wound, lacerated, thigh "H" (Class XXV, Inter. 186)		2	3		3				2		144
Wound, lacerated, thigh "H-R" (Class XXV, Inter. 186)			1	1							59
Wound, lacerated, thigh "I" (Class XXV, Inter. 186)		1	2	1					2		15
Wound, lacerated, thigh "K" (Class XXV, Inter. 186)	172	1	549	133	43		183	1	354	8	26,900
Wound, lacerated, thigh "I" (Class XXV, Inter. 186)	3	7	9	7	2				9	1	368
Wound, lacerated, thorax "E" (Class XXV, Inter. 186)		1				1					
Wound, lacerated, thorax "F" (Class XXV, Inter. 186)		3	1	3					1		21
Wound, lacerated, thorax "G" (Class XXV, Inter. 186)		1		1							6
Wound, lacerated, thorax "K" (Class XXV, Inter. 186)	15		68	14	5		19		45		2,164
Wound, lacerated, thorax "I" (Class XXV, Inter. 186)		2	1	2					1		45
Wound, lacerated, toe "E" (Class XXV, Inter. 186)	1	4	1	3	1				1	1	42
Wound, lacerated, toe "G" (Class XXV, Inter. 186)		1		1							9
Wound, lacerated, toe "H" (Class XXV, Inter. 186)		4		4							93
Wound, lacerated, toe "H-S" (Class XXV, Inter. 186)		1		1							2

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

Diagnosis.	Ram.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Wound, lacerated, toe, "I" (Class XXV, Inter. 186).....		20	5	18	1				6		422
Wound, lacerated, toe, "J" (Class XXV, Inter. 186).....		1		1							19
Wound, lacerated, toe, "K" (Class XXV, Inter. 186).....	3		5	2			3		3		153
Wound, lacerated, toe, "L" (Class XXV, Inter. 186).....		15	4	15	1				2	1	275
Wound, lacerated, unqualified, "E" (Class XXV, Inter. 186).....	1				1						32
Wound, lacerated, unqualified, "G" (Class XXV, Inter. 186).....		1		1							2
Wound, lacerated, unqualified, "I" (Class XXV, Inter. 186).....		1		1							5
Wound, lacerated, unqualified, "K" (Class XXV, Inter. 186).....	20				20						0
Wound, lacerated, unqualified, "L" (Class XXV, Inter. 186).....		1		1							26
Wound, lacerated, upper extremity, "F" (Class XXV, Inter. 186).....		1	1						2		21
Wound, lacerated, upper extremity, "K" (Class XXV, Inter. 186).....	7		13	2	6		2		10		1,112
Wound, lacerated, upper extremity, "L" (Class XXV, Inter. 186).....	1	1	1	1	1				1		37
Wound, lacerated, wrist, "B" (Class XXV, Inter. 186).....		1	1		1				1		8
Wound, lacerated, wrist, "F" (Class XXV, Inter. 186).....		1		1							11
Wound, lacerated, wrist, "G" (Class XXV, Inter. 186).....	2	6	5	6	1		3		3		233
Wound, lacerated, wrist, "H" (Class XXV, Inter. 186).....		2		2							36
Wound, lacerated, wrist, "H-R" (Class XXV, Inter. 186).....		1	1	1					1		2
Wound, lacerated, wrist, "K" (Class XXV, Inter. 186).....	7		15	6	3		7		6		559
Wound, lacerated, wrist, "L" (Class XXV, Inter. 186).....	1	15	13	16	2		2		9		386
Wound, punctured, abdominal, "A" (Class XXV, Inter. 170).....		1					1				0
Wound, punctured, abdominal, "B" (Class XXV, Inter. 170).....		5	1	3			2		1		25
Wound, punctured, abdominal, "E" (Class XXV, Inter. 170).....		6	8	3	1	3			7		305
Wound, punctured, abdominal, "F" (Class XXV, Inter. 170).....	1	1	1				2		1		104
Wound, punctured, abdominal, "K" (Class XXV, Inter. 170).....	16		32	10	4		10		23	1	1,805
Wound, punctured, abdominal, "L" (Class XXV, Inter. 170).....	2	4	4	4	1	1			4		90
Wound, punctured, ankle, "B" (Class XXV, Inter. 170).....		1		1							14
Wound, punctured, ankle, "E" (Class XXV, Inter. 170).....	1	2	1	1			1		1	1	74
Wound, punctured, ankle, "I" (Class XXV, Inter. 170).....		1		1							30
Wound, punctured, ankle, "K" (Class XXV, Inter. 170).....	5		30	3	3		12		17		1,205
Wound, punctured, ankle, "L" (Class XXV, Inter. 170).....	1	2	1	2	1				1		22
Wound, punctured, arm, "E" (Class XXV, Inter. 170).....		6	10	2	3		1		10		422
Wound, punctured, arm, "J" (Class XXV, Inter. 170).....		2		2							8
Wound, punctured, arm, "K" (Class XXV, Inter. 170).....	20	1	120	26	14		37		69	4	7,295
Wound, punctured, arm, "L" (Class XXV, Inter. 170).....	1	6	4	8					2	1	154
Wound, punctured, back, "B" (Class XXV, Inter. 170).....		3	2	2	1				2		37
Wound, punctured, back, "E" (Class XXV, Inter. 170).....		1		1							15
Wound, punctured, back, "K" (Class XXV, Inter. 170).....	28		37	14	6		9		36		1,851
Wound, punctured, back, "L" (Class XXV, Inter. 170).....	1	2	4	5	1				1		78

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Wound, punctured, brain, "A" (Class XXV, Inter. 170)	1	18					19				1
Wound, punctured, brain, "B" (Class XXV, Inter. 170)		1					1				0
Wound, punctured, brain, "E" (Class XXV, Inter. 170)		5					5				0
Wound, punctured, brain, "K" (Class XXV, Inter. 170)		2					2				0
Wound, punctured, elbow, "I" (Class XXV, Inter. 170)	1			1							1
Wound, punctured, elbow, "K" (Class XXV, Inter. 170)	7		16	2	2		7		12		1,094
Wound, punctured, elbow, "L" (Class XXV, Inter. 170)		1		1							6
Wound, punctured, eye and ad- nexa, "E" (Class XXV, Inter. 170)		2	3	2					2		2
Wound, punctured, eye and ad- nexa, "F" (Class XXV, Inter. 170)	2		1	1			1		1		9
Wound, punctured, eye and ad- nexa, "J" (Class XXV, Inter. 170)		1	1						1	1	2
Wound, punctured, eye and ad- nexa, "K" (Class XXV, Inter. 170)	9		12	3	2		10		6	1	67
Wound, punctured, eye and ad- nexa, "L" (Class XXV, Inter. 170)	4	8	12	6	1		5		11	1	39
Wound, punctured, face, "E" (Class XXV, Inter. 170)		2	4	3	1				1	1	74
Wound, punctured, face, "K" (Class XXV, Inter. 170)	8		31	5	3		10		21		1,085
Wound, punctured, face, "L" (Class XXV, Inter. 170)		1		1							6
Wound, punctured, finger, "B" (Class XXV, Inter. 170)		1	1	1					1		14
Wound, punctured, finger, "E" (Class XXV, Inter. 170)		4	3	3					2	1	41
Wound, punctured, finger, "H" (Class XXV, Inter. 170)		4		4							24
Wound, punctured, finger, "I" (Class XXV, Inter. 170)		2		2							26
Wound, punctured, finger, "K" (Class XXV, Inter. 170)	3		5	1	1		1		5		256
Wound, punctured, finger, "L" (Class XXV, Inter. 170)		13	5	14					4		243
Wound, punctured, foot, "B" (Class XXV, Inter. 170)		3	2	2	2				1		46
Wound, punctured, foot, "E" (Class XXV, Inter. 170)	4	15	18	15	1		2		16	3	961
Wound, punctured, foot, "G" (Class XXV, Inter. 170)		3	1	3					1		30
Wound, punctured, foot, "H" (Class XXV, Inter. 170)		4		4							17
Wound, punctured, foot, "I" (Class XXV, Inter. 170)		5		5							34
Wound, punctured, foot, "J" (Class XXV, Inter. 170)		6		6							6
Wound, punctured, foot, "K" (Class XXV, Inter. 170)	27		56	14	1		26		42		1,809
Wound, punctured, foot, "L" (Class XXV, Inter. 170)	8	195	29	207	6		1		17	1	1,817
Wound, punctured, forearm, "B" (Class XXV, Inter. 170)		1	1	1					1		31
Wound, punctured, forearm, "E" (Class XXV, Inter. 170)		1	1	1					1		2
Wound, punctured, forearm, "G" (Class XXV, Inter. 170)		1		1							6
Wound, punctured, forearm, "K" (Class XXV, Inter. 170)	25		41	12	4		15		35		2,544
Wound, punctured, forearm, "L" (Class XXV, Inter. 170)	1	1	2	3	1						81
Wound, punctured, hand, "E" (Class XXV, Inter. 170)	5	18	22	22	2		4		17		691
Wound, punctured, hand, "F" (Class XXV, Inter. 170)	1			1							14
Wound, punctured, hand, "G" (Class XXV, Inter. 170)		3	1	3					1		21

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Wound, punctured, hand, "H" (Class XXV, Inter. 170)		2		2							10
Wound, punctured, hand, "Y" (Class XXV, Inter. 170)		2		2							11
Wound, punctured, hand, "J" (Class XXV, Inter. 170)		1		1							7
Wound, punctured, hand, "K" (Class XXV, Inter. 170)	29		51	10	8		22		40		2,220
Wound, punctured, hand, "L" (Class XXV, Inter. 170)	1	19	3	18			1		4		232
Wound, punctured, head, "B" (Class XXV, Inter. 170)	3			1	2						21
Wound, punctured, head, "E" (Class XXV, Inter. 170)	1	1	1	1	1				1		30
Wound, punctured, head, "G" (Class XXV, Inter. 170)		1		1							4
Wound, punctured, head, "K" (Class XXV, Inter. 170)	14		25	5	2		5		27		1,215
Wound, punctured, head, "L" (Class XXV, Inter. 170)		1	1	1					1		2
Wound, punctured, heart, "B" (Class XXV, Inter. 170)		1				1					0
Wound, punctured, hip, "B" (Class XXV, Inter. 170)		1	1	1					1		26
Wound, punctured, hip, "E" (Class XXV, Inter. 170)		1	1	1			1				80
Wound, punctured, hip, "G" (Class XXV, Inter. 170)		1	1	1					1		11
Wound, punctured, hip, "K" (Class XXV, Inter. 170)	5		39	5	6		6		27		1,669
Wound, punctured, hip, "L" (Class XXV, Inter. 170)	1	1	1	2					1		121
Wound, punctured, intestines, "B" (Class XXV, Inter. 170)		1		1							1
Wound, punctured, jaw, "K" (Class XXV, Inter. 170)	2		6	1			2		5		522
Wound, punctured, jaw, "L" (Class XXV, Inter. 170)		1		1							3
Wound, punctured, kidney, "L" (Class XXV, Inter. 170)		1	1	1					1		48
Wound, punctured, knee, "E" (Class XXV, Inter. 170)		5	4	1	1		1		5	1	155
Wound, punctured, knee, "F" (Class XXV, Inter. 170)		1		1							37
Wound, punctured, knee, "G" (Class XXV, Inter. 170)		3	1	3					1		31
Wound, punctured, knee, "I" (Class XXV, Inter. 170)		1		1							14
Wound, punctured, knee, "J" (Class XXV, Inter. 170)		2	1	2					1		27
Wound, punctured, knee, "K" (Class XXV, Inter. 170)	26		58	8	7		14		55		3,455
Wound, punctured, knee, "L" (Class XXV, Inter. 170)	1	5	1	6					1		36
Wound, punctured, leg, "E" (Class XXV, Inter. 170)	5	13	15	17	1		1		11	3	1,163
Wound, punctured, leg, "G" (Class XXV, Inter. 170)		2		2							20
Wound, punctured, leg, "H" (Class XXV, Inter. 170)		2		2							6
Wound, punctured, leg, "K" (Class XXV, Inter. 170)	95	3	153	52	10	1	37		148	3	9,581
Wound, punctured, leg, "L" (Class XXV, Inter. 170)		12	7	10	1		1		6	1	514
Wound, punctured, lower extremity, "K" (Class XXV, Inter. 170)	5				5						37
Wound, punctured, lung, "A" (Class XXV, Inter. 170)		2	3	2	1	1			1		121
Wound, punctured, lung, "E" (Class XXV, Inter. 170)		1	1	1					1		12
Wound, punctured, lung, "F" (Class XXV, Inter. 170)		1				1					0
Wound, punctured, lung, "I" (Class XXV, Inter. 170)	1			1							10
Wound, punctured, lung, "K" (Class XXV, Inter. 170)	9		6	3	2		4		6		477
Wound, punctured, mouth, "K" (Class XXV, Inter. 170)			2		1				1		28

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Wound, punctured, multiple, "B" (Class XXV, Inter. 170).....		1	2	1		1			2		22
Wound, punctured, multiple, "E" (Class XXV, Inter. 170).....		2	2	2					2		175
Wound, punctured, multiple, "F" (Class XXV, Inter. 170).....		1		1							5
Wound, punctured, multiple, "K" (Class XXV, Inter. 170).....	40		32	14	3		31		69	5	5,598
Wound, punctured, multiple, "K-E" (Class XXV, Inter. 170).....			2	2							169
Wound, punctured, neck, "B" (Class XXV, Inter. 170).....		2	1	1		1			1		14
Wound, punctured, neck, "E" (Class XXV, Inter. 170).....		7	2	3		2			5		112
Wound, punctured, neck, "K" (Class XXV, Inter. 170).....	9		10	2	4		7		6		354
Wound, punctured, neck, "L" (Class XXV, Inter. 170).....		3	2	2	1	1			1		28
Wound, punctured, nose, "K" (Class XXV, Inter. 170).....			2	1					1		25
Wound, punctured, pelvis, "G" (Class XXV, Inter. 170).....		1	4	1	1				2		65
Wound, punctured, pelvis, "K" (Class XXV, Inter. 170).....	1				1						32
Wound, punctured, pelvis, "L" (Class XXV, Inter. 170).....	1			1							20
Wound, punctured, rectum, "G" (Class XXV, Inter. 170).....	1	1	3		2	1			2		191
Wound, punctured, rib, "K" (Class XXV, Inter. 170).....			1					1			119
Wound, punctured, scapula, "E" (Class XXV, Inter. 170).....	1			1							2
Wound, punctured, scapula, "K" (Class XXV, Inter. 170).....	5		6	5	1		1		4		58
Wound, punctured, scrotum, "K" (Class XXV, Inter. 170).....			1				1				0
Wound, punctured, scrotum, "L" (Class XXV, Inter. 170).....		1		1							1
Wound, punctured, shoulder, "B" (Class XXV, Inter. 170).....		3	1	3					1		88
Wound, punctured, shoulder, "E" (Class XXV, Inter. 170).....		5	3	3	1	1			3		61
Wound, punctured, shoulder, "K" (Class XXV, Inter. 170).....	23		60	17	2		18		46		3,027
Wound, punctured, testicle, "K" (Class XXV, Inter. 170).....			4	1	1				2		225
Wound, punctured, thigh, "A" (Class XXV, Inter. 170).....		1	1	1					1		38
Wound, punctured, thigh, "B" (Class XXV, Inter. 170).....	1	2	3	3					3		76
Wound, punctured, thigh, "E" (Class XXV, Inter. 170).....	4	22	9	15	2		3		15		586
Wound, punctured, thigh, "F" (Class XXV, Inter. 170).....	1			1							29
Wound, punctured, thigh, "G" (Class XXV, Inter. 170).....		2		2							16
Wound, punctured, thigh, "J" (Class XXV, Inter. 170).....		1		1							1
Wound, punctured, thigh, "K" (Class XXV, Inter. 170).....	100	2	214	41	18	1	65		187	4	10,515
Wound, punctured, thigh, "L" (Class XXV, Inter. 170).....		14	7	11	2	1	1		6		267
Wound, punctured, thorax, "A" (Class XXV, Inter. 170).....		6		1		5					24
Wound, punctured, thorax, "B" (Class XXV, Inter. 170).....		3	3	1	2	2			1		89
Wound, punctured, thorax, "E" (Class XXV, Inter. 170).....	2	15	11	5	3	8	2		10		262
Wound, punctured, thorax, "F" (Class XXV, Inter. 170).....		1		1							17
Wound, punctured, thorax, "G" (Class XXV, Inter. 170).....		1	1	1					1		25
Wound, punctured, thorax, "K" (Class XXV, Inter. 170).....	38	2	117	20	7	2	42		86		4,544
Wound, punctured, thorax, "L" (Class XXV, Inter. 170).....		6	2	4	2				2		96
Wound, punctured, toe, "E" (Class XXV, Inter. 170).....		1	1						1	1	36



TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Wound, punctured, toe, "K" (Class XXV, Inter. 170)			2	1			1				57
Wound, punctured, toe, "L" (Class XXV, Inter. 170)		2		2							12
Wound, punctured, unqualified, "E" (Class XXV, Inter. 170)		1				1					0
Wound, punctured, unqualified, "G" (Class XXV, Inter. 170)		1	1	1					1		10
Wound, punctured, upper extremity, "K" (Class XXV, Inter. 170)	1		5	1	1		1		3		247
Wound, punctured, wrist, "E" (Class XXV, Inter. 170)		1	1	1					1		22
Wound, punctured, wrist, "K" (Class XXV, Inter. 170)	5		14	4	1		4		10		527
Wound, punctured, wrist, "L" (Class XXV, Inter. 170)	1	1	2	2	1				1		28
<b>POISONS.</b>											
Creatoxism, "L" (Class XXVI, Inter. 164)		7		7							13
Insect sting, "J" (Class XXVI, Inter. 166A)		4		4							6
Insect sting, "L" (Class XXVI, Inter. 166A)		21	5	19	2				5		74
Poison, cocaine, anesthesia, "L" (Class XXVI, Inter. 165B)		2	1	2					1		36
Poison, ether, anesthesia, "L" (Class XXVI, Inter. 165B)		3			2	1					0
Poison, alcohol (ethyl), acute, "L" (Class XXVI, Inter. 56B)	7	250	131	262	41	2			81	2	1,338
Poison, alcohol (ethyl), chronic, "L" (Class XXVI, Inter. 56B)	1	29	18	23	7	4	4		10		518
Poison, alcohol (methyl), acute, "L" (Class XXVI, Inter. 165B)		9	5	4	1	6	1		2		85
Poison, ammonia (inhalation), acute, "L" (Class XXVI, Inter. 165B)		1	4	1	1				3		72
Poison, arsenic, acute, "A" (Class XXVI, Inter. 165B)		1				1					0
Poison, arsenic, acute, (anti- syphilitic treatment), "L" (Class XXVI, Inter. 165B)		22	13	19	6		1		7	2	604
Poison, carbon dioxide, acute, "L" (Class XXVI, Inter. 165B)		1				1					0
Poison, carbon monoxide, acute, "L" (Class XXVI, Inter. 165B)		3	3	3	1				2		28
Poison, carbon tetrachloride, acute, "C" (Class XXVI, Inter. 165B)		1	1	1					1		3
Poison, chloral, acute, "L" (Class XXVI, Inter. 165B)		2	2	2	1				1		5
Poison, chlorine, acute, "L" (Class XXVI, Inter. 165B)		1	1	1	1						90
Poison, chlorine, acute, "L-S" (Class XXVI, Inter. 165B)		1	1	1					1		25
Poison, chloroform, acute, "L" (Class XXVI, Inter. 165B)		1		1							2
Poison, chloroform, chronic, "L" (Class XXVI, Inter. 165B)		1	1		1		1				14
Poison, cocaine, acute, "L" (Class XXVI, Inter. 165B)		3	5	3	2				3		185
Poison, cocaine, chronic, "L" (Class XXVI, Inter. 59)	1	7	6	4	1		4		5		187
Poison, cyanogen, acute, "L" (Class XXVI, Inter. 165B)		1				1					7
Poison, fish venom, acute, "J" (Class XXVI, Inter. 165A)		1	2	2					1		20
Poison, food, animal, acute, "L" (Class XXVI, Inter. 164)		112	72	101	9			1	72	1	717
Poison, food, animal, chronic, "L" (Class XXVI, Inter. 164)		1					1				7
Poison, food, fish, acute, "L" (Class XXVI, Inter. 164)		9		8	1						46
Poison, food, vegetable, acute, "L" (Class XXVI, Inter. 164)		21	8	25	2				2		152
Poison, formaldehyde, acute, "A" (Class XXVI, Inter. 165B)		1	1		1				1		19

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>POISONS—Continued.</b>											
Poison, formaldehyde, acute, "L" (Class XXVI, Inter. 165B).....		1		1							2
Poison, gasoline, inhaled, acute, "F" (Class XXVI, Inter. 168B).....		1		1							9
Poison, gasoline, inhaled, acute, "L" (Class XXVI, Inter. 168B).....	1	8	4	8	1	1			3		81
Poison, heroin, acute, "L" (Class XXVI, Inter. 165B).....		3	4	3	1			1	2		59
Poison, heroin, chronic, "L" (Class XXVI, Inter. 59).....	1	12	7	8			5		7		257
Poison, hydrocyanic acid, acute, "L" (Class XXVI, Inter. 165B).....		1				1					0
Poison, illuminating gas, acute, "A" (Class XXVI, Inter. 168B).....		1				1					0
Poison, illuminating gas, acute, "L" (Class XXVI, Inter. 168B).....		4	1	2		2			1		8
Poison, iodine, acute, "A" (Class XXVI, Inter. 165B).....		3	3	2	1				3		19
Poison, iodine, acute, "L" (Class XXVI, Inter. 165B).....		3	2	2	1				2		35
Poison, lead, acute, "L" (Class XXVI, Inter. 165B).....		19	11	22	4				4		319
Poison, lead, chronic "L" (Class XXVI, Inter. 57B).....		11	8	10	3	1			5		466
Poison, marsh gas, acute, "L" (Class XXVI, Inter. 168B).....		2		2							2
Poison, mercuric chloride, acute, "A" (Class XXVI, Inter. 165B).....	1	5	3	5	1	1			2		79
Poison, mercuric chloride, acute, "L" (Class XXVI, Inter. 165B).....		5	3	4			1		2	1	38
Poison, mercury salts (anti-syphilitic treatment), acute, "L" (Class XXVI, Inter. 165B).....		6	3	4	2				2	1	176
Poison, morphine, acute, "L" (Class XXVI, Inter. 165B).....	1	3	7	3	2	1			3	2	255
Poison, morphine, chronic, "L" (Class XXVI, Inter. 59).....	2	9	11	4	2		6		8	2	348
Poison, opium, acute, "L" (Class XXVI, Inter. 165B).....		4	4	1	3	1			3		17
Poison, opium, chronic, "L" (Class XXVI, Inter. 59).....		1	1	1					1		17
Poison, potassium salts, acute, "A" (Class XXVI, Inter. 165B).....		2	2	2					2		37
Poison, potassium salts, acute, "L" (Class XXVI, Inter. 165B).....		4	1	3	1				1		19
Poison, phenol, acute, "A" (Class XXVI, Inter. 165B).....		4	2	2	1	1			2		16
Poison, phenol, acute, "L" (Class XXVI, Inter. 165B).....		2		1		1					5
Poison, potassium, cyanide, acute, "A" (Class XXVI, Inter. 165B).....		1	2	1	1				1		6
Poison, ptomaine, acute, "L" (Class XXVI, Inter. 164).....	1	19	10	19	4				7		97
Poison, quinine, acute, "L" (Class XXVI, Inter. 165B).....		3	3	3	1				2		15
Poison, salicylic acid (aspirin), acute, "L" (Class XXVI, Inter. 165B).....		2	2	2					2		15
Poison, snake venom, acute, "L" (Class XXVI, Inter. 165A).....		1		1							12
Poison, strychnine, acute, "L" (Class XXVI, Inter. 165B).....		1	1	1					1		17
Poison, turpentine, inhaled, acute, "L" (Class XXVI, Inter. 168B).....		6	1	4	1				2		50
Poison, unqualified, acute, "L" (Class XXVI, Inter. 165B).....		17	6	15	2	1		1	4		180
Poison, warfare gas, acute, "K" (Class XXVI, Inter. 168B).....	131		111	76	51		8	1	106		7,385
Poison, warfare gas, chronic, "K" (Class XXVI, Inter. 168B).....	59		522	83	31		283		178	6	14,956
Poison, zinc, acute, "L" (Class XXVI, Inter. 165B).....		2		2							20

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1919—Contd.

## SUMMARY.

Summary and comparative rates with previous years.	Entire service calendar year 1919.	Average, entire service, 10 years, 1909-1918.
Average complement.....	298,774	125,897
Number of admissions.....	201,978	83,933
Rate per 1,000 of complement.....	676.02	666.68
Deaths.....	1,762	1,264
Rate per 1,000 of complement.....	5.90	10.04
Invalidated from service.....	15,517	2,841
Rate per 1,000 of complement.....	51.94	22.57
Total number of sick days.....	4,423,204	1,358,299
Rate per 1,000 of complement.....	14,804.51	10,788.97
Total number of sick days in naval hospitals.....	3,086,323	.....
Rate per 1,000 of complement.....	10,329.95	.....

Figures from previous years for the preparation of the summary are as follows:

Year.	Average comple- ment.	Admis- sions.	Rate.	Deaths.	Rate.	In- val- idated from service.	Rate.	Sick days.
1909.....	57,172	38,735	697.30	286	5.00	1,621	28.35	578,302
1910.....	58,691	38,885	662.53	294	5.00	1,418	24.15	556,084
1911.....	61,399	38,650	629.48	253	4.12	1,675	27.28	605,063
1912.....	61,897	35,967	581.07	253	4.08	1,469	23.73	584,889
1913.....	65,926	33,703	511.22	252	3.82	1,319	20.00	662,090
1914.....	67,141	40,699	606.17	281	4.18	1,426	21.23	729,305
1915.....	68,075	44,743	657.26	305	4.47	1,272	18.68	776,203
1916.....	69,294	45,516	656.85	335	4.83	1,156	16.68	808,951
1917.....	245,580	131,357	534.88	1,072	4.36	5,063	20.61	1,954,278
1918.....	503,792	391,078	776.27	9,307	18.47	11,990	23.79	6,327,821

TABLE 2.—Table showing distribution of diseases and injuries among occupational admission rates, deaths and death rates, invalided from service

Class No.	Class.	Officers.		Artificers.				Miscellaneous force.		
		Navy and Marine.	Midshipmen.	Electricians.	Engine room.	Fire room.	All others.	Clerical.	Culinary.	Hospital.
	Average complement.....	21,765	2,019	12,020	15,196	33,735	15,608	21,312	17,699	8,989
1	Diseases of blood.....	8	.....	9	9	18	3	12	5	10
	Rate per 1,000.....	0.14	.....	0.75	0.59	0.53	0.19	0.61	0.28	1.60
2	Diseases of circulatory system.....	120	5	116	145	385	73	123	217	106
	Rate per 1,000.....	5.51	2.49	9.65	9.54	11.41	4.63	5.77	12.93	12.13
3	Diseases of digestive system.....	1,387	230	700	1,070	2,411	494	2,514	1,274	879
	Rate per 1,000.....	63.73	114.43	58.24	70.41	71.47	31.65	117.96	71.98	98.78
4	Diseases of ductless glands and spleen.....	5	.....	13	30	48	7	17	15	25
	Rate per 1,000.....	0.23	.....	1.08	1.93	1.33	0.45	0.80	0.85	2.81
5	Diseases of ear.....	123	49	133	198	564	89	128	163	113
	Rate per 1,000.....	5.65	24.33	11.06	13.03	16.72	5.70	6.01	9.21	12.70
6	Diseases of eye and adnexa.....	118	229	171	216	355	136	652	184	78
	Rate per 1,000.....	5.48	113.93	14.23	14.21	16.45	8.71	30.59	10.40	8.78
7	Diseases of genito-urinary system (nonvenereal).....	406	28	344	518	1,071	246	309	613	347
	Rate per 1,000.....	18.75	13.83	28.62	34.09	31.75	15.76	14.50	34.63	38.99
8	Communicable diseases transmissible by oral and nasal discharges.....	1,559	136	1,110	1,571	3,970	783	1,839	2,075	1,240
	Rate per 1,000.....	71.63	67.66	92.35	103.33	117.68	50.17	86.29	117.24	139.33
9	Communicable diseases transmissible by intestinal discharges.....	17	.....	4	8	30	.....	2	2	3
	Rate per 1,000.....	0.78	.....	0.33	0.53	0.89	.....	0.09	0.11	0.34
10	Communicable diseases transmissible by insects and other arthropods.....	178	3	61	127	165	42	40	143	83
	Rate per 1,000.....	8.18	1.49	5.07	8.39	4.89	2.69	1.83	8.08	10.31
11	Tuberculosis (all forms).....	103	5	59	97	174	36	77	148	106
	Rate per 1,000.....	4.73	2.49	4.91	6.38	5.18	2.31	3.61	8.36	11.91
12	Veneral diseases.....	458	2	1,248	2,499	6,065	1,072	1,039	5,305	357
	Rate per 1,000.....	21.04	0.99	103.83	163.48	179.78	68.68	48.75	299.73	43.48
13	Other diseases of infective type.....	368	145	303	504	1,780	241	453	644	284
	Rate per 1,000.....	16.91	72.14	25.21	33.17	52.78	15.44	21.26	36.39	31.91
14	Diseases of lymphatic system.....	50	11	46	105	290	49	40	171	36
	Rate per 1,000.....	2.30	5.47	3.83	6.91	8.60	3.14	1.83	9.69	4.04
15	Diseases of mind.....	62	4	31	49	297	29	38	127	57
	Rate per 1,000.....	2.85	1.99	2.58	3.22	8.80	1.86	1.78	7.18	6.40
16	Diseases of motor system.....	175	23	132	252	699	140	156	353	163
	Rate per 1,000.....	8.04	11.44	10.98	16.58	20.72	8.97	7.32	20.23	18.31
17	Diseases of nervous system.....	230	13	73	134	344	73	458	191	106
	Rate per 1,000.....	10.57	6.47	6.07	8.89	10.20	4.68	21.49	10.79	12.13
18	Diseases of respiratory system.....	2,096	464	1,590	1,859	5,650	963	3,791	2,097	1,966
	Rate per 1,000.....	96.30	230.85	132.23	122.33	167.48	62.92	177.88	169.33	219.78
19	Diseases of skin, hair, and nails.....	112	96	96	190	408	74	171	189	118
	Rate per 1,000.....	5.15	47.78	7.99	10.53	12.09	4.74	8.02	10.63	13.36
20	Hernia.....	139	5	88	163	302	75	73	149	84
	Rate per 1,000.....	6.39	2.49	7.15	10.73	8.95	4.81	3.43	8.48	9.44
21	Miscellaneous diseases and conditions.....	251	60	204	341	939	176	825	590	180
	Rate per 1,000.....	11.53	29.85	16.97	20.06	27.83	11.22	38.71	31.64	21.35
22	Parasites (fungi and certain animal parasites).....	49	21	175	162	431	119	109	439	83
	Rate per 1,000.....	2.25	10.45	14.58	10.66	12.78	7.68	5.11	24.80	9.21
23	Tumors.....	39	1	14	46	47	19	24	28	19
	Rate per 1,000.....	1.79	0.60	1.16	3.03	1.39	1.22	1.13	1.58	1.12
24	Female diseases and conditions.....	.....	.....	.....	.....	.....	.....	1,389	.....	.....
	Rate per 1,000.....	.....	.....	.....	.....	.....	.....	65.17	.....	.....

groups of the personnel for the calendar year 1919, by classified admissions and and invalided rates, suicides and suicide rates, and sick days.

Miscellaneous force.			Seamen branch.			Totals for all occupations.				Class No.
Marines.	Musicians.	Prisoners.	Apprentices.	Ordnance.	All others.	Number.	Deaths.	Invalided from service.	Sick days.	
30,884	3,848	1,791	13,337	5,688	95,031	298,774	1,762	15,517	4,423,204	
5			4	1	18	108	10	7	4,548	1
0.49			0.30	0.18	0.19	0.36	0.03	0.02	15.22	
319	32	8	322	38	627	2,638	49	1,443	96,241	2
10.33	8.32	4.47	24.14	6.74	6.60	8.83	0.16	4.83	322.12	
2,674	202	168	1,383	243	3,791	19,420	60	491	372,862	3
86.58	52.49	85.80	103.62	43.10	59.89	64.99	0.23	1.64	1,247.97	
58	4	2	40	2	51	304	1	180	14,193	4
1.88	1.04	1.12	2.99	0.35	0.54	1.02	0.005	0.60	47.50	
420	39	31	479	50	759	3,338	9	803	101,822	5
13.60	10.14	7.31	35.98	8.87	7.99	11.17	0.03	2.69	340.80	
387	40	35	265	32	543	3,441		1,072	59,839	6
12.53	10.40	19.54	19.87	5.68	5.71	11.62		3.59	200.28	
1,079	98	64	610	121	1,784	7,640	31	433	163,390	7
34.94	25.47	35.73	45.74	21.46	18.77	25.87	0.10	1.45	548.87	
4,653	314	410	4,259	361	7,363	31,643	735	54	582,694	8
150.66	81.80	228.92	319.34	64.03	77.48	105.91	2.46	0.18	1,960.28	
23	2		6	1	21	109	3	7	6,735	9
0.74	0.52		0.45	0.18	0.22	0.36	0.01	0.02	22.54	
1,608	45	11	140	28	397	3,080	3	4	38,471	10
52.07	11.69	6.14	10.50	4.97	4.18	10.31	0.01	0.01	128.78	
171	8	26	91	22	296	1,409	173	1,105	278,309	11
5.54	2.08	14.52	6.82	5.90	5.01	4.72	0.58	3.70	951.50	
3,436	286	163	1,048	631	9,741	33,350	11	719	538,421	12
111.25	74.38	91.01	78.58	111.92	108.50	111.82	0.04	2.41	1,889.04	
1,302	85	98	964	97	2,438	9,706	44	54	166,199	13
43.18	22.09	54.72	72.28	17.20	25.65	32.49	0.15	0.18	558.87	
298	17	14	87	30	357	1,601	3	9	43,944	14
9.65	4.42	7.82	6.52	5.32	5.76	5.36	0.01	0.03	147.08	
256	9	68	490	11	291	1,819	5	1,437	112,346	15
8.29	2.34	37.87	36.74	1.95	3.08	6.09	0.02	4.81	576.02	
756	24	49	529	36	881	4,373	5	2,044	172,989	16
24.48	6.24	27.36	39.66	6.39	9.27	14.64	0.02	6.84	578.99	
372	21	30	256	25	440	2,768	19	1,098	98,586	17
12.05	5.46	16.75	4.80	4.43	4.63	9.26	0.06	5.68	329.97	
4,780	388	573	4,456	498	10,170	41,951	15	768	516,304	18
154.77	100.83	319.93	334.11	88.33	107.02	140.41	0.05	2.57	1,728.07	
600	25	19	219	31	579	2,889	1	117	60,261	19
19.43	6.50	10.61	16.42	5.50	6.09	9.67	0.005	0.39	201.69	
267	24	19	266	34	548	2,234	2	214	110,373	20
8.65	6.24	10.61	19.24	6.03	5.77	7.48	0.007	0.72	369.42	
700	68	43	542	63	1,124	6,081	4	827	141,520	21
22.67	16.37	24.01	40.64	11.17	11.85	20.35	0.01	2.77	475.67	
529	34	6	637	39	855	3,097		4	45,685	22
17.45	8.84	3.35	47.76	6.92	8.99	12.37		0.01	152.91	
68	4	3	19	7	94	423	25	47	16,418	23
2.20	1.04	1.68	1.42	1.24	0.99	1.42	0.08	0.16	54.95	
36						1,425		36	5,068	24
1.16						4.77		0.12	16.96	

TABLE 2.—Table showing distribution of diseases and injuries among occupational admission rates, deaths and death rates, invalidated from service and

Class No.	Class.	Officers.		Artificers.				Miscellaneous force.		
		Navy and Marine.	Midshipmen.	Electricians.	Engine room.	Fire room.	All others.	Clerical.	Culinary.	Hospital.
26	Wounds and other injuries.....	675	260	488	1,118	3,048	584	617	1,062	339
	Rate per 1,000.....	31.01	122.35	40.60	73.87	90.35	37.48	33.85	61.76	32.69
26	Poisons.....	41	10	18	36	90	32	27	50	36
	Rate per 1,000.....	1.88	4.98	1.60	2.37	2.93	2.05	1.27	2.83	4.04
27	Totals for all classes.....	8,766	1,800	7,224	11,377	29,577	5,575	14,924	16,839	6,843
	Rate per 1,000.....	402.76	896.52	600.89	743.63	878.75	357.19	700.26	961.41	763.83
28	Deaths.....	185	2	82	128	219	55	73	121	33
	Rate per 1,000.....	8.60	0.99	6.82	8.42	6.49	3.52	3.43	6.84	3.71
29	Suicides.....	10	.....	4	3	4	.....	2	2	3
	Rate per 1,000.....	0.46	.....	0.33	0.20	0.12	.....	0.09	0.11	0.34
30	Invalided from service.....	170	1	569	877	2,082	497	619	1,291	394
	Rate per 1,000.....	7.81	0.50	47.34	57.71	61.72	31.24	29.04	72.24	66.74
31	Total sick days.....	234,389	16,095	144,830	268,442	607,061	116,817	162,508	342,043	151,639
		10,769.08	7,007.461	5,049.071	7,007.811	7,964.997	424.457	626.091	9,396.631	4,969.66

*groups of the personnel for the calendar year 1919, by classified admissions and invalided rates, suicides and suicide rates, and sick days—Continued.*

Miscellaneous force.			Seamen branch.			Totals for all occupations.				Class No.
Marines.	Musicians.	Prisoners.	Apprentices.	Ordnance.	All others.	Number.	Deaths.	Invalided from service.	Sick days.	
1,984	95	142	1,007	261	4,139	15,849	517	2,229	626,686	25
64.24	24.68	79.29	75.50	46.29	43.55	53.05	1.73	7.46	2,097.52	26
143	3	13	33	10	131	682	28	315	29,300	
4.63	0.78	7.26	2.47	1.77	1.38	2.28	0.09	1.05	98.07	
26,944	1,862	1,995	18,152	2,672	47,428	201,978	1,762	15,517	4,423,204	27
872.42	453.89	1,113.90	1,361.02	473.83	489.08	676.02	5.90	51.94	14,804.51	
274	14	10	133	44	399	1,762	.....	.....	.....	28
8.87	3.64	5.58	9.97	7.80	4.09	5.90	.....	.....	.....	
16	.....	.....	3	.....	5	52	.....	.....	.....	29
0.52	.....	.....	0.22	.....	0.05	0.17	.....	.....	.....	
3,409	120	104	2,155	101	2,928	15,517	.....	.....	.....	30
110.38	31.19	58.07	161.58	17.91	30.81	51.94	.....	.....	.....	
943,552	34,986	36,095	366,120	57,274	951,964	4,423,204	.....	.....	.....	31
30,551.46	9,091.99	20,153.54	27,451.42	10,158.58	10,017.33	14,804.51	.....	.....	.....	

## DEATHS.

TABLE 3.—Casualties in the Navy and Marine Corps during the calendar year 1919.

Cause.		Num-ber.	Navy.		Marine Corps.	
Primary.	Secondary.		Offi-cers.	Men.	Offi-cers.	Men.
DISEASES.						
Abscess of brain.....		3		3		
Abscess of liver.....		2		2		
Abscess of lung.....		2		2		
Do.....	Gangrene.....	1				1
Abscess of prostate gland.....		1				1
Abscess, subphrenic.....		1		1		
Abscess, unqualified.....		2		2		
Do.....	Leukemia.....	1				1
Adhesions of peritoneum.....		1		1		
Do.....	Peritonitis, acute, general.....	1				
Anemia, pernicious.....		3		2		1
Aneurism.....		5		4		1
Aneurism of heart.....		1	1			
Angina pectoris.....		3	2			1
Anthrax.....		1		1		
Apoplexy.....		3	1		1	
Appendicitis, acute.....		21		18		3
Do.....	Fistula, fecal.....	1	1			
Do.....	Peritonitis, acute, general.....	2		2		
Appendicitis, chronic.....		3	1	1		1
Arterial sclerosis, general.....		2	1	1		
Arthritis, acute.....		1		1		
Arthritis, chronic.....	Embolism.....	1	1			
Carcinoma.....		9	4	5		
Do.....	Obstruction, acute intestinal.....	1				1
Cellulitis.....		1		1		
Cerebro-spinal fever.....		31	1	22	1	7
Cholangitis, acute.....		1		1		
Cholecystitis, acute.....		1		1		
Cholecystitis, chronic.....		2		2		
Chorea.....		1		1		
Cirrhosis of liver, atrophic.....		2		1		1
Cystoma.....		1		1		
Dementia, paralytica.....		5	1	4		
Dermatitis, unqualified.....		1		1		
Diabetes mellitus.....		4	1	3		
Dilatation, acute cardiac.....		5	1	4		
Diphtheria.....		11		10		1
Do.....	Measles.....	1		1		
Do.....	Pleurisy, suppurative.....	2		2		
Do.....	Pneumonia, broncho.....	2		2		
Do.....	Pneumonia, lobar.....	2		2		
Dysentery, bacillary.....		1		1		
Embolism.....		3		3		
Encephalitis, acute.....		3		2		1
Encephalitis, epidemic (lethargic).....		2		1		1
Endocarditis, acute.....		2		2		
Do.....	Hemorrhage into cerebrum.....	1		1		
Endocarditis, chronic.....		3	2	1		
Epilepsy.....	Meningitis, cerebral.....	1				1
Erysipelas.....		1		1		
Exophthalmic goiter.....		1				1
Fatty heart.....		3		3		
Gastroenteritis.....		1	1			
Glioma.....		3	1	2		
Gonococcus infection, unqualified.....	Pyelonephritis.....	1		1		
Hemophilia.....		1		1		
Hemorrhage into cerebellum.....		1		1		
Hemorrhage into cerebrum.....		4	1	3		
Hemorrhage, subdural.....		1		1		
Hernia, inguinal.....	Peritonitis, acute, general.....	1		1		
Do.....	Poison, ether, anesthesia.....	1		1		
Hodgkin's disease.....		2		1	1	
Influenza.....		68	4	46	2	16
Do.....	Abscess of brain.....	1		1		
Do.....	Endocarditis, acute.....	4		3		1
Do.....	Endocarditis, chronic.....	1		1		
Do.....	Leukemia.....	1				1
Do.....	Meningitis, cerebral.....	1				1
Do.....	Meningitis, cerebro-spinal.....	3		2		1
Do.....	Nephritis, acute.....	1		1		
Do.....	Obstruction, acute intestinal.....	1	1			



## DEATHS—Continued.

TABLE 3.—Casualties in the Navy and Marine Corps during the calendar year 1919—Con.

Cause.		Num- ber.	Navy.		Marine Corps.	
Primary.	Secondary.		Offi- cers.	Men.	Offi- cers.	Men.
DISEASES—continued.						
Influenza.....	Pericarditis.....	1		1		
Do.....	Pleurisy, serofibrinous.....	3		3		
Do.....	Pleurisy, suppurative.....	29	2	24		
Do.....	Pneumonia, broncho.....	342	40	241	3	58
Do.....	Pneumonia, lobar.....	95	10	69		16
Do.....	Septicæmia.....	3	1	1		1
Do.....	Tuberculosis, acute, general.....	1				1
Do.....	Tuberculosis, chronic pulmo- nary.....	1		1		
Do.....	Tuberculosis, unqualified.....	2	1	1		
Leukæmia.....		4	1	3		
Lipoma.....	Arterial sclerosis, general.....	1		1		
Malaria.....		2				2
Do.....	Abscess of liver.....	1		1		
Mastoiditis, acute.....		4		4		
Do.....	Otitis, media, acute.....	1		1		
Do.....	Pneumonia, broncho.....	1		1		
Do.....	Septicæmia.....	1		1		
Measles.....		2		2		
Do.....	Angiopeptic edema.....	1		1		
Do.....	Meningitis, cerebral.....	1		1		
Do.....	Pneumonia, broncho.....	13		12		1
Do.....	Pneumonia, lobar.....	1				1
Meningitis, cerebral.....		1		1		
Meningitis, cerebro-spinal.....		18		13		5
Do.....	Embolism.....	1		1		
Myocarditis, acute.....		2		2		
Myocarditis, chronic.....		4		4		
Nephritis, acute.....		11		10		1
Nephritis, chronic interstitial.....		13	1	7	1	4
Nephritis, chronic parenchymatous.....		3		2		1
Do.....	Leukæmia.....	1	1			
Nephrolithiasis.....	Edema of lung.....	1				1
Obstruction, acute intestinal.....		13	2	11		
Obstruction, chronic intestinal.....		1		1		
Osteomyelitis, acute.....		1				1
Do.....	Septicæmia.....	2		2		
Otitis, media, acute.....	Meningitis, cerebro-spinal.....	1		1		
Otitis, media, chronic.....	Pneumonia, broncho.....	1		1		
Pachymeningitis, cerebral.....		1	1			
Pancreatitis, acute.....		1		1		
Pericarditis.....		2		1		1
Peritonitis, acute, general.....		3		3		
Peritonitis, chronic, general.....		1		1		
Pleurisy, serofibrinous.....	Abscess of liver.....	1				1
Pleurisy, suppurative.....		4		4		
Pneumonia, broncho.....		18		13		5
Do.....	Pleurisy, suppurative.....	1		1		
Pneumonia, lobar.....		60	6	59		6
Do.....	Abscess of brain.....	1		1		
Do.....	Endocarditis, acute.....	1		1		
Do.....	Pleurisy, serofibrinous.....	2		2		
Do.....	Pleurisy, suppurative.....	5		3		2
Purpura, hemorrhagic.....		2		2		
Pyelonephritis.....		1		1		
Rheumatic fever, acute.....		1		1		
Do.....	Myocarditis, acute.....	1		1		
Sarcoma.....		9		8		1
Scarlet fever.....		6		5		1
Do.....	Pleurisy, suppurative.....	1		1		
Do.....	Pneumonia, broncho.....	1		1		
Do.....	Pneumonia, lobar.....	2		2		
Do.....	Septicæmia.....	1		1		
Septicæmia.....		12		12		
Do.....	Pneumonia, broncho.....	1		1		
Stomatitis, ethmoidal.....	Meningitis, cerebral.....	1		1		
Smallpox.....		2		2		
Status lymphaticus.....		1	1			
Syphilis.....		5		5		
Do.....	Locomotor ataxia.....	1		1		
Do.....	Poison, arsenic (antisyphilitic treatment).....	3		2		1

## DEATHS—Continued.

TABLE 3.—Casualties in the Navy and Marine Corps during the calendar year 1919—Con.

Cause.		Number.	Navy.		Marine Corps.	
Primary.	Secondary.		Officers.	Men.	Officers.	Men.
DISEASES—continued.						
Syphilis.....	Valvular disease, chronic cardiac.	1		1		
Teratoma.....		1		1		
Tetanus.....		2		2		
Thrombosis.....		2	1	1		
Tonsillitis, acute follicular.....	Myocarditis, acute.	1		1		
Do.....	Pneumonia, broncho-	3		3		
Do.....	Septicemia.	1		1		
Tonsillitis, chronic.....	Poison, ether, anesthesia.	1		1		
Tuberculosis, acute bronchopneumonic.		3		3		
Tuberculosis, acute general.....		3		3		
Tuberculosis, acute pneumonic.....		8		8		
Tuberculosis, acute pulmonary miliary.		10		9		1
Do.....	Pneumonia, lobar.	1		1		
Tuberculosis, chronic pulmonary.....		120	14	97	1	18
Do.....	Pneumonia, lobar.	1		1		
Do.....	Tuberculosis, acute broncho-pneumonic.	1		1		
Tuberculosis of joint.....		2		2		
Tuberculosis of larynx.....		1	1			
Tuberculosis of spinal column.....		1		1		
Tuberculosis, unqualified.....		1		1		
Do.....	Pericarditis.	1		1		
Do.....	Pneumonia, broncho-	1		1		
Tuberculous meningitis.....		9	1	8		
Typhoid fever.....		2		2		
Ulcer of duodenum.....		3		3		
Ulcer of intestines.....		1		1		
Ulcer of stomach.....		7	2	5		
Valvular disease, chronic cardiac.....		11	1	9		1
Total for diseases.....		1,217	112	918	10	177
INJURIES.						
Avulsion, leg, "F".....		1				1
Burn, arms, "L".....	Septicemia.	1		1		
Burn, multiple, "C".....		1		1		
Burn, multiple, "F".....		17		16		1
Do.....	Nephralgia.	1		1		
Do.....	Pneumonia, broncho-	1		1		
Do.....	Pneumonia, lobar.	1		1		
Burn, multiple, "K".....		1				1
Burn, multiple, "L".....		5		5		
Contusion, multiple, "I".....		1		1		
Crush, abdomen, "I".....		1		1		
Crush, head, "I".....		1		1		
Crush, leg, "I".....	Septicemia.	1		1		
Crush, lower extremity, "I".....		2		1		1
Crush, multiple, "I".....		4		4		
Crush, thigh, "I".....		1		1		
Crush, thorax, "H".....		1	1			
Crush, thorax, "I".....		3		3		
Dislocation, shoulder, "I".....	Hemorrhage into joint.	1				1
Dislocation, vertebra, "A".....		1		1		
Dislocation, vertebra, "GR".....		2	1	1		
Drowning, "A".....		8		6		2
Drowning, "D".....		178	9	150		19
Drowning, "DR".....		21	13	7		1
Drowning, "DS".....		3		3		
Drowning, "DU".....		1		1		
Electric shock, "L".....		4		3		1
Exhaustion from heat, "L".....		4		4		
Exhaustion from over-exposure, "L".....		2		1		1
Fracture, compound, arm, "G".....	Septicemia.	1		1		
Fracture, compound, femur, "K".....		1				
Fracture, compound, femur, "I".....	Meningitis, cerebro-spinal.	1		1		
Fracture, compound, legs, "L".....		1		1		
Fracture, compound, multiple, "L".....		1	1			
Fracture, compound, pelvis, "I".....		1		1		
Fracture, compound, skull, "F".....		2	1	1		

## DEATHS—Continued.

TABLE 3.—Casualties in the Navy and Marine Corps during the calendar year 1919—Con.

Cause.		Num- ber.	Navy.		Marine Corps.	
Primary.	Secondary.		Offi- cers.	Men.	Offi- cers.	Men.
INJURIES—continued.						
Fracture, compound, skull, "G"		13	2	10		1
Fracture, compound, skull, "GR"		4	1	3		
Fracture, compound, skull, "I"		3		2		1
Fracture, compound, skull, "L"		8		7		1
Fracture, compound, tibia, "GR"	Shock	1	1			
Fracture, simple, femur, "L"		1		1		
Fracture, simple, rib, "L"		1	1			
Fracture, simple, patella, "G"	Edema of lung	1		1		
Fracture, simple, pelvis, "I"	Pneumonia, broncho-	1		1		
Fracture, simple, pelvis, "L"		1		1		
Fracture, simple, skull, "A"		1				1
Fracture, simple, skull, "G"		9	1	6		2
Fracture, simple, skull, "GR"		7	5	2		
Fracture, simple, skull, "I"		1		1		
Fracture, simple, skull, "L"		6		5		1
Fracture, simple, skull, "L"	Erysipelas	1		1		
Fracture, simple, vertebra, "G"		3		3		
Fracture, simple, vertebra, "GR"		2		2		
Fracture, simple, vertebra, "L"		1		1		
Intracranial injury, "B"		1		1		
Intracranial injury, "G"		5	1	4		
Intracranial injury, "J"		1		1		
Intracranial injury, "L"		2		2		
Intraspinal injury, "G"		1				1
Multiple injuries, extreme, "A"		1		1		
Multiple injuries, extreme, "E"		3	1	1		1
Multiple injuries, extreme, "ER"		2		2		
Multiple injuries, extreme, "F"		1		1		
Multiple injuries, extreme, "G"		8	1	6		1
Multiple injuries, extreme, "GR"		7	4		2	1
Multiple injuries, extreme, "GR"	Hemianopsia	1		1		
Multiple injuries, extreme, "H"		3		3		
Multiple injuries, extreme, "H"		7	1	4	1	1
Multiple injuries, extreme, "IR"		2	1	1		
Multiple injuries, extreme, "L"		8	1	7		
Multiple injuries, extreme, "LR"		2	1	1		
Rupture, bladder, "G"		1		1		
Rupture, heart, "J"		1		1		
Rupture, intestines, "L"		1		1		
Rupture, kidney, "L"		1				1
Rupture, liver, "G"		2		2		
Rupture, liver, "I"		2		1		1
Rupture, liver, "L"		2		2		
Rupture, lung, "I"		1		1		
Rupture, mesentery, "H"		1		1		
Smoke inhalation, "C"		3		3		
Strangulation, "A"		5	1	3		1
Strangulation, "L"		3		2		1
Wound, incised, abdomen, "B"		1		1		
Wound, incised, head, "B"		1			1	
Wound, incised, head, "L"		1		1		
Wound, incised, multiple, "A"		1	1			
Wound, incised, neck, "A"		2	1	1		
Wound, incised, neck, "I"		2		2		
Wound, incised, thorax, "B"		2		2		
Wound, lacerated, abdomen, "E"		2		1		1
Wound, lacerated, abdomen, "F"		1		1		
Wound, lacerated, arm, "G"		1		1		
Wound, lacerated, arm, "K"	Septicemia	1				1
Wound, lacerated, back, "K"		2				2
Wound, lacerated, face, "E"		1				1
Wound, lacerated, face, "K"		2				2
Wound, lacerated, head, "A"		3				3
Wound, lacerated, head, "F"		1		1		
Wound, lacerated, head, "K"		2		2		2
Wound, lacerated, lung, "E"		1				1
Wound, lacerated, multiple, "E"		1		1		
Wound, lacerated, multiple, "F"		1		1		
Wound, lacerated, neck, "GR"		1	1			
Wound, lacerated, shoulder, "K"		1				1
Wound, lacerated, thorax, "R"		1		1		

## DEATHS—Continued.

TABLE 3.—Casualties in the Navy and Marine Corps during the calendar year 1919—Con.

Cause.		Num-ber.	Navy.		Marine Corps.	
Primary.	Secondary.		Offic-ers.	Men.	Offic-ers.	Men.
INJURIES—continued.						
Wound, punctured, abdomen, "A"		1				1
Wound, punctured, abdomen, "B"		2		1		1
Wound, punctured, abdomen, "E"		2		1		1
Do.	Peritonitis, acute general.	1		1		
Wound, punctured, abdomen, "L"	do.	1		1		
Wound, punctured, brain, "A"		18	3	9	2	4
Do.	Constitutional, inferiority.	1		1		
Wound, punctured, brain, "B"		1		1		
Wound, punctured, brain, "E"		5		2		3
Wound, punctured, brain, "K"		2			1	1
Wound, punctured, heart, "B"		1		1		
Wound, punctured, leg, "K"		1				1
Wound, punctured, lung, "A"		1		1		
Wound, punctured, lung, "F"		1		1		
Wound, punctured, multiple, "B"		1		1		
Wound, punctured, neck, "B"	Pneumonia, broncho-	1				1
Wound, punctured, neck, "E"		2				2
Wound, punctured, neck, "L"		1				1
Wound, punctured, rectum, "G"		1		1		
Wound, punctured, shoulder, "E"		1				1
Wound, punctured, thigh, "E"		1		1		1
Wound, punctured, thigh, "L"	Gangrene, infective.	1		1		
Wound, punctured, thorax, "A"		5	1			4
Wound, punctured, thorax, "B"		2		1		1
Wound, punctured, thorax, "E"		8		5		3
Wound, punctured, thorax, "K"		2			1	1
Wound, punctured, unqualified, "E"		1		1		
Total for injuries.....		517	56	365	8	28
POISONS.						
Poison, ether, anesthesia, "L"		1		1		
Poison, acid, hydrocyanic, acute, "L"		1		1		
Poison, alcohol, ethyl, acute, "L"		2		2		
Poison, alcohol, ethyl, chronic, "L"		4				4
Poison, alcohol, methyl, acute, "L"		6		1		5
Poison, arsenic, acute, "A"		1		1		
Poison, carbon dioxide, acute, "L"		1		1		
Poison, cyanogen, acute, "L"		1		1		
Poison, gasoline (inhaled), acute, "L"		1		1		
Poison, illuminating gas, acute, "A"		1		1		
Poison, illuminating gas, acute, "L"		2		2		
Poison, lead, chronic, "L"		1		1		
Poison, mercuric chloride, acute, "A"		1	1			
Poison, morphine, acute, "L"		1		1		
Poison, opium, acute, "L"		1		1		
Poison, phenol, acute, "A"		1		1		
Poison, phenol, acute, "L"		1		1		
Poison, unqualified, acute, "L"		1		1		
Total for poison.....		28	1	18	0	9

## INVALIDED FROM THE SERVICE.

TABLE 4.—Discharged from the service by reason of physical disability during the calendar year 1919.

Disability.	Number.	Navy.		Marine Corps.	
		Officers.	Men.	Officers.	Men.
DISEASE.					
Abscess about rectum	3		3		
Abscess of kidney	2		2		
Abscess of kidney, perinephritic	1		1		
Abscess of liver	2		2		
Abscess of lung	2		2		
Abscess of lymph-node	1		1		
Abscess, subphrenic	2		1		1
Abscess, unqualified.	10		8	1	1
Acne	16		16		
Acromegaly	2		2		
Adenoma	1		1		
Adhesions about gall-bladder	7		7		
Adhesions about stomach	4	2	2		
Adhesions of peritoneum	111		97		14
Albuminuria	3		2		1
Amaurosis	1		1		
Amblyopia	63	1	60		2
Amputation stump	210	1	104	4	101
Anemia, simple	3		2		1
Anemia, splenic	1		1		
Aneurism	9	1	5		3
Aneurismal varix	1		1		
Angina pectoris	4	1	3		
Angiospastic edema	2		2		
Ankylosis of arytenoid cartilage	1				1
Ankylosis of joint	122	1	90	2	29
Ankylosis of ossicles	2		2		
Aortitis	1		1		
Apoplexy	1		1		
Appendicitis, acute	6		4		2
Appendicitis, chronic	18		17		1
Arterial sclerosis, general	9	1	8		
Arthritis, acute	2		2		
Arthritis, chronic	268	3	207		58
Arthritis, deformans	2		2		
Asthma	74		66		8
Astigmatism	91	1	85		5
Ataxia, hereditary	2	1	1		
Atony of bladder	4		4		
Atrophy (of bone or cartilage)	8		7		1
Atrophy of muscle	47	1	36	1	9
Atrophy of optic nerve	12		10		2
Atrophy of testicle	5		4		1
Autointoxication, intestinal	4		3		1
Blepharitis	3		3		
Bronchiectasis	4		4		
Bronchitis, chronic	204		155		49
Bronchitis, fibrinous	1		1		
Bursitis, acute	1		1		
Bursitis, chronic	31		30		1
Calculus in ureter, impacted	1		1		
Callosities	4		1		3
Carcinoma	4		4		
Cardiospasm	1		1		
Caries of tooth	26		24		2
Cataract	26		24		2
Cellulitis	12		7		5
Cerebrospinal fever	39		36		3
Chancroid	2		2		
Chancroid of lymph-node	2		2		
Chilblain	2		2		
Cholecystitis, acute	1		1		
Cholecystitis, chronic	7		7		
Cholelithiasis	1		1		
Chondritis	2		2		
Chondroma	2		2		
Chorea	28		23		
Chorea, chronic progressive	1		1		
Chorioiditis	25	1	18		6
Cicatricial contraction	59		54		5
Cicatrix of skin	19		15		4
Cirrhosis of liver, atrophic	2		2		
Cirrhosis of liver, hypertrophic	2		2		
Clavus	2		2		

## INVALIDED FROM THE SERVICE—Continued.

TABLE 4.—Discharged from the service by reason of physical disability during the calendar year 1919—Continued.

Disability.	Number.	Navy.		Marine Corps.	
		Officers.	Men.	Officers.	Men.
DISEASE—continued.					
Colitis, chronic.....	2		1		1
Color blindness.....	71	1	69		1
Conjunctivitis, chronic.....	13		11		2
Conjunctivitis, phlyctenular.....	1		1		
Constipation.....	12		12		
Constitutional inferiority (mental).....	647	1	589		57
Constitutional psychopathic state.....	105	1	85		19
Contracture of joint.....	11		11		
Contracture (of muscle, fascia, tendon, or sheath).....	25		23		2
Coxa vara.....	1		1		
Cramp of ciliary muscle.....	1		1		
Curvature of spine.....	31		25		6
Cyclitis.....	1		1		
Cystitis, acute (nonvenereal).....	2		2		
Cystitis, chronic (nonvenereal).....	10		9		1
Cystoma.....	1		1		
Dacryocystitis.....	3		3		
Deafness.....	58	2	47	1	8
Deformity of bladder, acquired.....	1		1		
Deformity of nose, acquired.....	1		1		
Deformity of penis, acquired.....	1		1		
Dementia, paralytica.....	18	2	13		3
Dementia, precox.....	343	2	301	1	20
Dentition.....	28		28		
Dermatitis, unqualified.....	7		7		
Detachment of choroid.....	2		2		
Detachment of retina.....	9		7		2
Deviation of nasal septum.....	6		6		
Diabetes insipidus.....	3		3		
Diabetes mellitus.....	14	1	10	1	2
Dilatation, chronic cardiac.....	2		2		
Dilatation of stomach, chronic.....	1		1		
Diverticulitis.....	1	1			
Dysentery, enteric.....	7		5		2
Dysentery, unclassified.....	1		1		
Dystrophy, progressive muscular.....	2		2		
Eczema.....	24		22		2
Embolism.....	2		1	1	
Encephalitis, epidemic (lethargic).....	2		1		1
Endocarditis, acute.....	8		2		6
Endocarditis, chronic.....	168	1	153	1	14
Enteritis, chronic.....	2				2
Enterocolitis.....	1		1		
Entropion.....	1		1		
Epididymitis, chronic (nonvenereal).....	1		1		
Epilepsy.....	344	1	314		29
Epilepsy, Jacksonian.....	8		7		1
Epiphora.....	4		4		
Eustachian salpingitis, chronic.....	8	1	7		
Exophthalmic goiter.....	50		42		8
Fatty heart.....	1		1		
Fermentation, gastric.....	2		1		1
Fermentation, intestinal.....	1		1		
Fibroma.....	1				1
Fistula in ano.....	10		9		1
Fistula of salivary gland (or duct).....	1		1		
Fistula of urethra.....	2		2		
Gastritis, chronic catarrhal.....	68		57		11
Gastroduodenitis.....	2		2		
Gastroenteritis.....	7		4		3
Gastroptosis.....	19		17		2
Genu recurvatum.....	1		1		
Genu valgum.....	1		1		
Gingivitis.....	3		3		
Glaucoma, chronic.....	8		2		1
Glioma.....	2		2		
Glycosuria.....	2		2		
Goiter.....	102		91		11
Gonococcus infection of conjunctiva.....	8		1		7
Gonococcus infection of joints.....	66		60		6
Gonococcus infection of lymph-node.....	1		1		
Gonococcus infection of urethra.....	406		363		43
Gonococcus infection, unqualified.....	9		7		2
Gout, chronic.....	1		1		

## INVALIDED FROM THE SERVICE—Continued.

TABLE 4.—Discharged from the service by reason of physical disability during the calendar year 1919—Continued.

Disability.	Number.	Navy.		Marine Corps.	
		Officers.	Men.	Officers.	Men.
DISEASE—continued.					
Hallux valgus.....	10		7		3
Hammer toe.....	19		12		7
Headache.....	1		1		
Heart block.....	6		3		3
Hematomyelia.....	1				1
Hematuria, renal.....	1		1		
Hemianopsia.....	1				1
Hemiplegia, old.....	14		7		7
Hemophilia.....	1		1		
Hemoptysis.....	3	1	2		
Hemorrhage into cerebellum.....	1				1
Hemorrhage into cerebrum.....	4	1	2		1
Hemorrhage into retina.....	3		1	1	1
Hemorrhage, subdural.....	1		1		
Hemorrhoids.....	4		4		
Hernia, epigastric.....	2		2		
Hernia, inguinal.....	185		179		6
Hernia, lumbar.....	1		1		
Hernia of (muscle, fascia, tendon, or sheath).....	8		7		1
Hernia, umbilical.....	1		1		
Hernia, ventral.....	25		20		5
Hodgkin's disease.....	1		1		
Hydrocele of tunica vaginalis.....	2		2		
Hydronephrosis.....	4		4		
Hyperesthesia of retina.....	3		3		
Hyperchylia, gastric.....	4		4		
Hyperidrosis.....	1		1		
Hypermetropia.....	48	1	45		2
Hypertrophy of bone.....	7		5		2
Hypertrophy of heart.....	7		7		
Hypertrophy of tonsil.....	2		2		
Hypochlorhydria.....	9		8		1
Hypochondriasis.....	1		1		
Hysteria.....	148		128		20
Ichthyosis.....	4		4		
Imbecility.....	128		125		3
Incontinence of urine.....	60		49		11
Inflammation of spermatic cord.....	1				1
Influenza.....	2		1		1
Insomnia.....	1		1		
Insufficiency of ocular muscle.....	25		21		4
Iridochoiritis.....	2		1		1
Iridocyclitis.....	2	1	1		
Iritis.....	12		12		
Keratitis.....	19		18		1
Keratolritis.....	1		1		
Laryngitis, chronic.....	18	1	15		2
Leukemia.....	2		2		
Leukoderma.....	1		1		
Leukoma.....	18		15		3
Lipoma.....	1		1		
Locomotor ataxia.....	6	1	5		
Loose body in joint.....	19		16		3
Loss of substance (of bone or cartilage).....	26	1	13		12
Lupus, erythematosus.....	1		1		
Lymphadenitis, chronic.....	5		4		1
Lymphangioma.....	1				1
Lymphangitis.....	2				2
Lymphoma.....	1	1			
Malaria.....	4		3		1
Malformations, congenital.....	35		32		3
Malnutrition.....	17		15		2
Mastoiditis, acute.....	4		4		
Mastoiditis, chronic.....	49	1	40		8
Masturbation.....	1		1		
Melancholia, involutional.....	1		1		
Menière's disease.....	2	1	1		
Meningitis, cerebral.....	1		1		
Meningitis, cerebro-spinal.....	9		4		5
Meningitis, spinal.....	1		1		
Metatarsalgia.....	4		2		2
Migraine.....	8	1	7		
Moron.....	31		31		

## INVALIDED FROM THE SERVICE—Continued.

TABLE 4.—Discharged from the service by reason of physical disability during the calendar year 1919—Continued.

Disability.	Number.	Navy.		Marine Corps.	
		Officers.	Men.	Officers.	Men.
DISEASE—continued.					
Myelitis, disseminated.....	4		3		1
Myelitis, transverse.....	4		4		
Myocarditis, acute.....	3		3		
Myocarditis, chronic.....	272	1	232	4	35
Myopia.....	486	4	477		4
Myositis, chronic.....	26		22		4
Myositis, traumatic, ossifying.....	2		2		
Nausea marina.....	116		116		
Necrosis.....	4		4		
Nephralgia.....	1	1			
Nephritis, acute.....	8		7		1
Nephritis, chronic interstitial.....	39		37		2
Nephritis, chronic parenchymatous.....	64	1	50		13
Nephritis, disseminated, suppurative.....	2		1		1
Nephrothiasis.....	12		11		1
Nephropoecosis.....	1		1		
Neuralgia.....	6		6		
Neurasthenia.....	263	5	218		40
Neuritis.....	92		79		13
Neuritis, multiple.....	8		6		2
Neuritis, optic.....	9		6		3
Neuroma.....	1		1		
Neuroretinitis.....	6		5		1
Neurosis, intestinal.....	5		3		2
Neurosis, occupational.....	3		2		1
Neurosis of bladder.....	144		137		7
Neurosis, traumatic.....	32	1	17		14
Neurosis, war.....	8		4		4
Night blindness.....	1		1		
No disease.....	9		9		
Nystagmus.....	1		1		
Obesity.....	1		1		
Obstruction, chronic intestinal.....	5	1	4		
Odontoma.....	1		1		
Onychia.....	1				1
Opacity of vitreous humor.....	9		8		1
Orchitis, acute (nonvenereal).....	2		2		
Orchitis, chronic (nonvenereal).....	14		14		
Ossification of cartilage, unqualified.....	1				1
Osteoarthropathy, hypertrophic.....	4		3		1
Osteoma.....	26		19		7
Osteomyelitis, chronic.....	31		24		7
Otitis externa.....	3		3		
Otitis interna, chronic.....	39	1	31	1	6
Otitis media, acute.....	2		2		
Otitis media, chronic.....	638	2	579		57
Ozena.....	2		2		
Pachymeningitis, cerebral.....	2		2		
Pachymeningitis, spinal.....	6		6		
Palpitation, cardiac.....	4		3		1
Pancreatitis, chronic.....	1	1			
Panophthalmitis.....	6		6		
Paralysis, agitans.....	1		1		
Paralysis of nerve.....	52		42		10
Paralysis of ocular muscle.....	12		12		
Paralysis of vocal cords.....	2		2		
Paralysis, muscle, ischemic.....	2		2		
Paramyoclonus multiplex.....	1		1		
Paranoia.....	1		1		
Paranoiac state.....	4		3		1
Perforated nasal septum.....	2		2		
Pericarditis.....	9		9		
Pericardium, adherent.....	2		2		
Periostitis, acute.....	1		1		
Periostitis, chronic.....	21	1	16		4
Peritonitis, chronic, general.....	1		1		
Peritonitis, chronic, local.....	1		1		
Pes cavus.....	30		22		8
Pes planus.....	1,123	1	939		183
Pharyngitis, chronic.....	2		2		
Phimosis.....	1		1		
Phlebitis.....	56	1	51		4
Pleurisy, acute fibrinous.....	3		2		1
Pleurisy, chronic fibrinous.....	92		72		20



## INVALIDED FROM THE SERVICE—Continued.

TABLE 4.—Discharged from the service by reason of physical disability during the calendar year 1919—Continued.

Disability.	Number.	Navy.		Marine Corps.	
		Officers.	Men.	Officers.	Men.
DISEASE—continued.					
Pleurisy, serofibrinous.....	45		24		11
Pleurisy, suppurative.....	167		173		14
Pleuritic adhesions.....	34		21		3
Pneumonia, broncho.....	6		3		3
Pneumonia, interstitial.....	2		1		1
Pneumonia, lobar.....	5		4		1
Pneumococcosis.....	1		1		
Poliomyelitis, acute anterior.....	2		2		
Poliomyelitis, chronic anterior.....	3	1	2		
Presbyopia.....	2		2		
Prolapse of rectum.....	5		4		1
Prostatitis, chronic (nonvenereal).....	4		3		1
Psoriasis.....	26		23		2
Psychasthenia.....	51	2	38		11
Psychoneurosis.....	9		9		
Psychosis, due to organic brain disease.....	4	1	3		
Psychosis, epileptic.....	4		3		1
Psychosis (exhaustive, infective, and toxic).....	12	2	9		5
Psychosis, hysterical.....	22		17		5
Psychosis, intoxication.....	1		1		
Psychosis, manic depressive.....	47	2	40		5
Psychosis, polyneuritic.....	1				1
Psychosis, traumatic.....	5		4		1
Psychosis, unclassified.....	2		3		
Pterygium.....	4		4		
Pyelitis.....	9	1	7		1
Pyelonephritis.....	3		3		
Pyorrhea, alveolaris.....	33		27		6
Raynaud's disease.....	2		1		1
Redundant prepuce.....	1		1		
Retention cyst.....	1		1		
Retinitis.....	29	2	23		4
Rheumatic fever, acute.....	5		5		
Rheumatic fever, subacute.....	12		9		3
Rheumatism, chronic articular.....	243	2	213		28
Rheumatism, muscular.....	65	1	57		7
Rhinitis, atrophic.....	19	1	17		1
Rhinitis, hypertrophic.....	2		1		1
Rumination.....	1		1		
Sarcoma.....	4		3		1
Schistosomiasis, intestinal.....	4		4		
Sclerosis, disseminated.....	6		6		
Sclerosis, lateral.....	2		2		
Senility.....	2		2		
Sinus.....	3		3		
Sinuritis, ethmoidal.....	20	1	18		1
Sinusitis, frontal.....	32	1	29		2
Sinusitis, maxillary.....	8		8		
Sinusitis, sphenoidal.....	1		1		
Somnambulism.....	8		7		1
Splanchnoptosis.....	6		2		4
Splenitis, chronic interstitial.....	2		2		
Stammering.....	26		25		1
Stenosis of nasal duct.....	4		3		1
Stenosis of punctum lacrimale.....	1		1		
Stenosis of pylorus.....	1				1
Stricture of esophagus.....	1		1		
Stricture of ureter.....	1		1		
Stricture of urethra.....	2		2		
Stuttering.....	5		5		
Synechia.....	4		4		
Syphilis.....	230	2	217		11
Syngonavelia.....	1		1		
Tachycardia.....	40		32		8
Talipes.....	8		8		
Tenosynovitis.....	9		5		4
Tetany.....	1		1		
Thrombosis.....	8		6		2
Thyroiditis, acute.....	1		1		
Thyroiditis, chronic.....	23		17		6
Tic, convulsive.....	3		2		1
Tic, coordinated.....	1		1		
Tic, psychical.....	2		2		
Tonsillitis, acute follicular.....	1		1		

## INVALIDED FROM THE SERVICE—Continued.

TABLE 4.—Discharged from the service by reason of physical disability during the calendar year 1919—Continued.

Disability.	Number.	Navy.		Marine Corps.	
		Officers.	Men.	Officers.	Men.
DISEASE—continued.					
Myelitis, disseminated.....	4		3		1
Myelitis, transverse.....	4		4		
Myocarditis, acute.....	3		3		
Myocarditis, chronic.....	272	1	232	4	35
Myopia.....	485	4	477		4
Myositis, chronic.....	26		22		4
Myositis, traumatic, ossifying.....	2		2		
Nausea marina.....	116		116		
Necrosis.....	4		4		
Nephralgia.....	1	1			
Nephritis, acute.....	8		7		1
Nephritis, chronic interstitial.....	39		37		2
Nephritis, chronic parenchymatous.....	64	1	50		13
Nephritis, disseminated, suppurative.....	2		1		1
Nephrolithiasis.....	12		11		1
Nephroptosis.....	1		1		
Neuralgia.....	6		6		
Neurasthenia.....	263	5	218		40
Neuritis.....	92		79		13
Neuritis, multiple.....	8		6		2
Neuritis, optic.....	9		6		3
Neuroma.....	1		1		
Neuroretinitis.....	6		5		1
Neurosis, intestinal.....	5		3		2
Neurosis, occupational.....	3		2		1
Neurosis of bladder.....	144		137		7
Neurosis, traumatic.....	32	1	17		14
Neurosis, war.....	8		4		4
Night blindness.....	1		1		
No disease.....	9		9		
Nystagmus.....	1		1		
Obesity.....	1		1		
Obstruction, chronic intestinal.....	5	1	4		
Odontoma.....	1		1		
Onychia.....	1				1
Opacity of vitreous humor.....	9		8		1
Ochritis, acute (nonvenereal).....	2		2		
Ochritis, chronic (nonvenereal).....	14		14		
Ossification of cartilage, unqualified.....	1				1
Osteoarthropathy, hypertrophic.....	4		3		1
Osteoma.....	26		19		
Osteomyelitis, chronic.....	31		24		7
Otitis externa.....	3		3		
Otitis interna, chronic.....	39	1	31	1	6
Otitis media, acute.....	2		2		
Otitis media, chronic.....	638	2	579		5
Ozena.....	2		2		
Pachymeningitis, cerebral.....	2		2		
Pachymeningitis, spinal.....	6		6		
Palpitation, cardiac.....	4		3		1
Pancreatitis, chronic.....	1	1			
Panophthalmitis.....	6		6		
Paralysis, agitans.....	1		1		
Paralysis of nerve.....	53		42		10
Paralysis of ocular muscle.....	12		12		
Paralysis of vocal cords.....	2		2		
Paralysis, muscle, ischemic.....	2		2		
Paramyoclonus multiplex.....	1		1		
Paranoia.....	1		1		
Paranoiac state.....	4		3		1
Perforated nasal septum.....	2		2		
Pericarditis.....	9		9		
Pericardium, adherent.....	2		2		
Periostitis, acute.....	1		1		
Periostitis, chronic.....	21	1	16		4
Peritonitis, chronic, general.....	1		1		
Peritonitis, chronic, local.....	1		1		
Pes cavus.....	30		22		8
Pes planus.....	1,123	1	939		183
Pharyngitis, chronic.....	2		2		
Phimosis.....	1		1		
Phlebitis.....	56	1	51		4
Pleurisy, acute fibrinous.....	3		2		1
Pleurisy, chronic fibrinous.....	92		72		20

## INVALIDED FROM THE SERVICE—Continued.

TABLE 4.—Discharged from the service by reason of physical disability during the calendar year 1919—Continued.

Disability.	Number.	Navy.		Marine Corps.	
		Officers.	Men.	Officers.	Men.
DISEASE—continued.					
Pleurisy, serofibrinous.....	45		34		11
Pleurisy, suppurative.....	187		173		14
Pleuritic adhesions.....	34		31		3
Pneumonia, broncho.....	6		3		3
Pneumonia, interstitial.....	2		1		1
Pneumonia, lobar.....	5		4		1
Pneumococcosis.....	1		1		
Polioomyelitis, acute anterior.....	2		2		
Polioomyelitis, chronic anterior.....	3	1	2		
Presbyopia.....	2		2		
Prolapse of rectum.....	5		4		1
Prostatitis, chronic (nonvenereal).....	4		3		1
Psoriasis.....	25		23		2
Psychasthenia.....	51	2	38		11
Psychoneurosis.....	9		9		
Psychosis, due to organic brain disease.....	4	1	3		
Psychosis, epileptic.....	4		3		1
Psychosis (exhaustive, infective, and toxic).....	12	2	9		1
Psychosis, hysterical.....	22		17		5
Psychosis, intoxication.....	1		1		
Psychosis, manic depressive.....	47	2	40		5
Psychosis, polyneuritic.....	1				1
Psychosis, traumatic.....	5		4		1
Psychosis, unclassified.....	2		3		
Pterygium.....	4		4		
Pyelitis.....	9	1	7		1
Pyelonephritis.....	3		3		
Pyorrhea, alveolaris.....	33		27		6
Raynaud's disease.....	2		1		1
Redundant prepuce.....	1		1		
Retention cyst.....	1		1		
Retinitis.....	29	2	23		4
Rheumatic fever, acute.....	5		5		
Rheumatic fever, subacute.....	12		9		3
Rheumatism, chronic articular.....	242	2	213		28
Rheumatism, muscular.....	65	1	57		7
Rhinitis, atrophic.....	19	1	17		1
Rhinitis, hypertrophic.....	2		1		1
Rumination.....	1		1		
Sarcoma.....	4		3		1
Schistosomiasis, intestinal.....	4		4		
Sclerosis, disseminated.....	6		6		
Sclerosis, lateral.....	2		2		
Senility.....	2		2		
Sinus.....	3		3		
Sinusitis, ethmoidal.....	20	1	18		1
Sinusitis, frontal.....	32	1	29		2
Sinusitis, maxillary.....	8		8		
Sinusitis, sphenoidal.....	1		1		
Somnambulism.....	8		7		1
Splanchnoptosis.....	6		2		4
Splenitis, chronic interstitial.....	2		2		
Stammering.....	26		25		1
Stenosis of nasal duct.....	4		3		1
Stenosis of punctum lacrimale.....	1		1		
Stenosis of pylorus.....	1				1
Stricture of esophagus.....	1		1		
Stricture of ureter.....	1		1		
Stricture of urethra.....	2		2		
Stuttering.....	5		5		
Synechia.....	4		4		
Syphilis.....	230	2	217		11
Strabismus.....	1		1		
Tachycardia.....	40		32		8
Talipes.....	8		8		
Tenosynovitis.....	9		5		4
Tetany.....	1		1		
Thrombosis.....	8		6		2
Thyroiditis, acute.....	1		1		
Thyroiditis, chronic.....	23		17		6
Tic, convulsive.....	3		2		1
Tic, coordinated.....	1		1		
Tic, psychical.....	2		2		
Tonsillitis, acute follicular.....	1		1		

## INVALIDED FROM THE SERVICE—Continued.

TABLE 4.—Discharged from the service by reason of physical disability during the calendar year 1919—Continued.

Disability.	Number.	Navy.		Marine Corps.	
		Officers.	Men.	Officers.	Men.
DISEASE—continued.					
Tonsillitis, chronic.....	2		2		
Torsion of omentum.....	1		1		
Trachoma.....	26		25		1
Tuberculosis, abdominal.....	9		9		
Tuberculosis, acute bronchopneumonic.....	8	1	7		
Tuberculosis, acute general.....	1				1
Tuberculosis, acute pneumonic.....	22		19		3
Tuberculosis, acute pulmonary miliary.....	16		12		4
Tuberculosis, chronic pulmonary.....	989	23	858	8	189
Tuberculosis of joint.....	9		7		2
Tuberculosis of larynx.....	2		2		
Tuberculosis of pleura.....	4		3		1
Tuberculosis of spinal column.....	17		14		3
Tuberculosis, unqualified.....	28	2	24		2
Ulcer of duodenum.....	35		33		2
Ulcer of eye and adnexa.....	9		7		2
Ulcer of intestines.....	2		2		
Ulcer of mouth.....	1				1
Ulcer of skin.....	5		4		1
Ulcer of stomach.....	43	1	41		1
Union of fracture faulty.....	143	1	125	1	16
Urethritis, acute (nonvenereal).....	1		1		
Urticaria.....	5		4		1
Valvular disease, chronic cardiac.....	774	6	717	1	59
Varicocele.....	22	1	20		1
Varix.....	66	1	52		13
Vertigo.....	2				2
Total for diseases.....	12,937	116	11,268	29	1,534
INJURIES.					
Avulsion, arm, "H-R".....	1		1		
Avulsion, fingers, "H".....	3		2		1
Avulsion, fingers, "K".....	1				1
Avulsion, hand, "I".....	1				1
Avulsion, toes, "H".....	1				1
Burn, eye and adnexa, "C".....	1		1		
Burn, eye and adnexa, "L".....	2		2		
Burn, fingers, "L".....	1		1		
Burn, hand, "F".....	1		1		
Burn, multiple, "F".....	5		5		
Burn, multiple, "J".....	1		1		
Burn, multiple, "K".....	1				1
Compression, ear, "K".....	1				1
Compression, head, "K".....	7				7
Compression, nerve, tenth cranial, "G".....	1		1		
Contusion, abdomen, "L".....	1		1		
Contusion, ankle, "L".....	1		1		
Contusion, back, "G".....	3		3		
Contusion, back, "K".....	2				2
Contusion, back, "L".....	1		1		
Contusion, elbow, "G".....	1		1		
Contusion, eye and adnexa, "L".....	1		1		
Contusion, foot, "H".....	1				1
Contusion, foot, "L".....	3		1		2
Contusion, head, "L".....	1		1		
Contusion, hip, "G".....	1		1		
Contusion, knee, "G".....	6		4		2
Contusion, leg, "L".....	1		1		
Contusion, multiple, "L".....	1		1		
Contusion, neck, "H".....	1		1		
Contusion, pelvis, "I".....	1		1		
Contusion, testicle, "G".....	1				1
Contusion, wrist, "K".....	1				1
Crush, face, "I".....	1		1		
Crush, fingers, "H".....	4		4		
Crush, fingers, "I".....	3		3		
Crush, foot, "H".....	2		2		
Crush, foot, "I".....	4		4		
Crush, hand, "H".....	3		3		
Crush, hand, "I".....	3		3		
Dislocation, ankle, "G".....	1		1		
Dislocation, ankle, "K".....	1				1
Dislocation, clavicle, "G".....	1		1		
Dislocation, elbow, "J".....	1				1

## INVALIDED FROM THE SERVICE—Continued.

TABLE 4.—Discharged from the service by reason of physical disability during the calendar year 1919—Continued.

Disability.	Number.	Navy.		Marine Corps.	
		Officers.	Men.	Officers.	Men.
INJURIES—continued.					
Dislocation, hip, "G"	3		2		1
Dislocation, hip, "K"	1				1
Dislocation, hip, "L"	1				1
Dislocation, intra-articular cartilage, "G"	2		1	1	
Dislocation, intra-articular cartilage, "J"	5		5		
Dislocation, intra-articular cartilage, "K"	1		1		
Dislocation, intra-articular cartilage, "L"	3		3		
Dislocation, knee, "G"	1				1
Dislocation, knee, "J"	5		4		1
Dislocation, knee, "K"	1				1
Dislocation, knee, "L"	1		1		
Dislocation, patella, "G"	2		2		
Dislocation, patella, "J"	1				1
Dislocation, patella, "L"	1		1		
Dislocation, shoulder, "G"	3		3		
Dislocation, shoulder, "J"	1		1		
Dislocation, shoulder, "L"	7		5		2
Dislocation, vertebra, "G"	1		1		
Dislocation, vertebra, "J"	2		2		
Dislocation, vertebra, "L"	4		4		1
Dislocation, wrist, "G"	3		2		1
Dislocation, wrist, "L"	2		1		1
Epiphyseal separation, knee, "J"	1		1		
Epiphyseal separation, knee, "L"	1		1		
Foreign body, traumatic, arm, "K"	1				1
Foreign body, traumatic, eye, "H"	1		1		
Foreign body, traumatic, eye, "K"	2				2
Foreign body, traumatic, eye, "L"	6	1	5		
Foreign body, traumatic, lung, "F"	1		1		
Foreign body, traumatic, thigh, "E"	1		1		
Fracture, compound, about ankle, "L"	1		1		
Fracture, compound, about knee, "K"	1				1
Fracture, compound, clavicle, "K"	1				1
Fracture, compound, femur, "G"	2		2		
Fracture, compound, femur, "K"	19				19
Fracture, compound, fibula, "I"	1				2
Fracture, compound, fibula, "K"	2				17
Fracture, compound, humerus, "K"	18		1		
Fracture, compound, humerus, "L"	1		1		
Fracture, compound, maxilla, "K"	3				3
Fracture, compound, maxilla, "L"	1		1		
Fracture, compound, metacarpal, "E"	1		1		
Fracture, compound, metacarpal, "F"	1		1		
Fracture, compound, metacarpal, "H"	1		1		
Fracture, compound, metacarpal, "I"	1		1		
Fracture, compound, metacarpal, "J"	1		1		
Fracture, compound, metacarpal, "K"	3				3
Fracture, compound, metatarsal, "E"	1		1		
Fracture, compound, metatarsal, "I"	2		2		
Fracture, compound, metatarsal, "K"	6				6
Fracture, compound, patella, "G"	1				1
Fracture, compound, patella, "K"	1				1
Fracture, compound, pelvis, "E"	1		1		
Fracture, compound, pelvis, "K"	1				1
Fracture, compound, phalanges, foot, "L"	1		1		
Fracture, compound, phalanges, hand, "E"	1				1
Fracture, compound, phalanges, hand, "H"	3	1	2		
Fracture, compound, phalanges, hand, "I"	2		2		
Fracture, compound, phalanges, hand, "K"	2				2
Fracture, compound, phalanges, hand, "L"	1		1		
Fracture, compound, radius, "G"	1		1		
Fracture, compound, radius, "K"	2				2
Fracture, compound, radius and ulna, "G"	2		2		
Fracture, compound, radius and ulna, "H"	1		1		
Fracture, compound, radius and ulna, "K"	6				6
Fracture, compound, radius and ulna, "L"	1		1		
Fracture, compound, rib, "K"	1				1
Fracture, compound, scapula, "K"	2				2
Fracture, compound, skull, "B"	1		1		
Fracture, compound, skull, "G"	1		1		
Fracture, compound, skull, "K"	8				8
Fracture, compound, skull, "L"	6		3		3
Fracture, compound, tibia, "I"	2		2		
Fracture, compound, tibia, "K"	11				11
Fracture, compound, tibia, "L"	2		1		1
Fracture, compound, tibia and fibula, "G"	3		2		1

## INVALIDED FROM THE SERVICE—Continued.

TABLE 4.—Discharged from the service by reason of physical disability during the calendar year 1919—Continued.

Disability.	Number.	Navy.		Marine Corps.	
		Officers.	Men.	Officers.	Men.
INJURIES—continued.					
Fracture, compound, tibia and fibula, "H".....	1		1		
Fracture, compound, tibia and fibula, "H-R".....	1				
Fracture, compound, tibia and fibula, "I".....	4		3		
Fracture, compound, tibia and fibula, "K".....	4				
Fracture, compound, tibia and fibula, "L".....	8		8		
Fracture, compound, ulna, "K".....	6		1		
Fracture, compound, ulna, "L".....	1		1		
Fracture, compound, vertebra, "K".....	1				
Fracture, simple, about ankle, "G".....	11		11		
Fracture, simple, about ankle, "H".....	1		1		
Fracture, simple, about ankle, "I".....	1				
Fracture, simple, about ankle, "J".....	3				
Fracture, simple, about ankle, "K".....	1				
Fracture, simple, about ankle, "L".....	2		2		
Fracture, simple, about elbow, "G".....	3		3		
Fracture, simple, about wrist, "G".....	3		3		
Fracture, simple, about wrist, "I".....	1		1		
Fracture, simple, about wrist, "L".....	1		1		
Fracture, simple, arm, "G".....	7		6		
Fracture, simple, arm, "H-R".....	1		1		
Fracture, simple, arm, "J".....	1		1		
Fracture, simple, arm, "K".....	1				
Fracture, simple, arm, "L".....	4		2		
Fracture, simple, clavicle, "G".....	3		3		
Fracture, simple, clavicle, "H".....	1		1		
Fracture, simple, clavicle, "J".....	2		1		
Fracture, simple, clavicle, "K".....	1				
Fracture, simple, clavicle, "L".....	1		1		
Fracture, simple, femur, "E".....	1		1		
Fracture, simple, femur, "G".....	27		24		
Fracture, simple, femur, "I".....	2		2		
Fracture, simple, femur, "J".....	1		1		
Fracture, simple, femur, "K".....	2				
Fracture, simple, femur, "L".....	9		6		
Fracture, simple, femur, "L-R".....	1				
Fracture, simple, maxilla, "G".....	1		1		
Fracture, simple, maxilla, "H".....	1		1		
Fracture, simple, metacarpal, "G".....	3		2		
Fracture, simple, metacarpal, "H".....	2		2		
Fracture, simple, metacarpal, "J".....	2		2		
Fracture, simple, metacarpal, "L".....	3		2		
Fracture, simple, metatarsal, "F".....	1		1		
Fracture, simple, metatarsal, "G".....	13	1	11		
Fracture, simple, metatarsal, "G-R".....	1		1		
Fracture, simple, metatarsal, "H".....	2		2		
Fracture, simple, metatarsal, "I".....	2		2		
Fracture, simple, metatarsal, "J".....	2		2		
Fracture, simple, metatarsal, "L".....	6		4		
Fracture, simple, multiple, "G".....	3		3		
Fracture, simple, multiple, "I".....	1		1		
Fracture, simple, patella, "G".....	9		8		
Fracture, simple, patella, "I".....	1				
Fracture, simple, patella, "K".....	2				
Fracture, simple, patella, "L".....	4		4		
Fracture, simple, pelvis, "E".....	1		1		
Fracture, simple, pelvis, "G".....	1		1		
Fracture, simple, pelvis, "H".....	1		1		
Fracture, simple, pelvis, "I".....	1		1		
Fracture, simple, phalanges, foot, "H".....	1				
Fracture, simple, phalanges, foot, "K".....	1		1		
Fracture, simple, phalanges, hand, "L".....	1		1		
Fracture, simple, radius, "G".....	11		10		
Fracture, simple, radius, "J".....	2		2		
Fracture, simple, radius, "K".....	1				
Fracture, simple, radius, "L".....	3		3		
Fracture, simple, radius and ulna, "G".....	8		5		
Fracture, simple, radius and ulna, "GR".....	1		1		
Fracture, simple, radius and ulna, "H".....	2		1		
Fracture, simple, radius and ulna, "I".....	2		1		
Fracture, simple, radius and ulna, "J".....	1				
Fracture, simple, radius and ulna, "K".....	1				
Fracture, simple, radius and ulna, "L".....	1		1		
Fracture, simple, rib, "J".....	1		1		
Fracture, simple, rib, "L".....	1		1		
Fracture, simple, scapula, "G".....	1		1		
Fracture, simple, skull, "G".....	1		1		

## INVALIDED FROM THE SERVICE—Continued.

TABLE 4.—Discharged from the service by reason of physical disability during the calendar year 1919—Continued.

Disability.	Number.	Navy.		Marine Corps.	
		Officers.	Men.	Officers.	Men.
INJURIES—continued.					
Fracture, simple, skull, "J"	1				1
Fracture, simple, skull, "K"	1		1		
Fracture, simple, skull, "L"	3		3		
Fracture, simple, tibia, "G"	6		5		1
Fracture, simple, tibia, "I"	2		2		
Fracture, simple, tibia, "J"	3		2		1
Fracture, simple, tibia, "K"	3				3
Fracture, simple, tibia, "L"	6	1	4		1
Fracture, simple, tibia and fibula, "G"	12		10		2
Fracture, simple, tibia and fibula, "H"	2		2		
Fracture, simple, tibia and fibula, "I"	5		5		
Fracture, simple, tibia and fibula, "J"	4		2		2
Fracture, simple, tibia and fibula, "K"	1				1
Fracture, simple, tibia and fibula, "L"	2		2		
Fracture, simple, ulna, "E"	1				1
Fracture, simple, ulna, "G"	5		5		
Fracture, simple, ulna, "L"	1		1		
Fracture, simple, vertebra, "G"	8		8		
Fracture, simple, vertebra, "GR"	1		1		
Fracture, simple, vertebra, "H"	1		1		
Fracture, simple, vertebra, "I"	2		2		
Fracture, simple, vertebra, "J"	1		1		
Fracture, simple, vertebra, "L"	7		5		2
Frostbite, fingers, "L"	1		1		
Frostbite, foot, "K"	1				1
Frostbite, foot, "L"	3		1		2
Frostbite, lower extremity, "K"	1				1
Intracranial injury, "G"	1		1		
Intracranial injury, "Q"	11		11		
Intracranial injury, "J"	3		2		1
Intracranial injury, "K"	1		1		
Intracranial injury, "L"	6		6		
Intraspinal injury, "G"	1		1		
Multiple injuries extreme, "G"	2		2		
Multiple injuries extreme, "K"	1				1
Multiple injuries extreme, "L"	1				1
Rupture, globe, eye, traumatic, "J"	1		1		
Rupture, globe, eye, traumatic, "K"	2				2
Rupture, globe, eye, traumatic, "L"	3		3		
Rupture, intra-articular cartilage, traumatic, "L"	1		1		
Rupture, ligament, traumatic, "I"	1		1		
Rupture, muscle, unqualified, traumatic, "G"	1				1
Rupture, muscle, unqualified, traumatic, "L"	2		2		
Rupture, scrotum, traumatic, "J"	1		1		
Rupture, spleen, traumatic, "G"	1		1		
Rupture, tympanum, traumatic, "E"	1		1		
Rupture, tympanum, traumatic, "F"	1		1		
Rupture, tympanum, traumatic, "K"	1		1		
Rupture, tympanum, traumatic, "L"	1				1
Sprain, ankle, "G"	4		2		2
Sprain, ankle, "L"	2		1		1
Sprain, hip, "E"	1		1		
Sprain, hip, "G"	12		11	1	
Sprain, hip, "H"	1		1		
Sprain, hip, "L"	17		15		2
Sprain, knee, "G"	7		2		5
Sprain, knee, "J"	4		2		2
Sprain, knee, "K"	3				3
Sprain, knee, "L"	1		1		
Sprain, vertebra, "G"	3		2		1
Sprain, vertebra, "K"	2				2
Sprain, vertebra, "L"	2		2		
Sprain, wrist, "J"	1				1
Strain, abdominal, "L"	1		1		
Strain, back (vertebral), "G"	5		5		
Strain, back (vertebral), "L"	6		5		1
Strain, foot, "G"	1				1
Strain, foot, "L"	2		2		
Synovitis, ankle, traumatic, "G"	1		1		
Synovitis, elbow, traumatic, "G"	1		1		
Synovitis, knee, traumatic, "G"	22		18		4
Synovitis, knee, traumatic, "J"	10		6		4
Synovitis, knee, traumatic, "L"	9		8		1
Synovitis, phalanges, hand, traumatic, "H"	1		1		
Synovitis, shoulder, traumatic, "L"	1		1		

## INVALIDED FROM THE SERVICE—Continued.

TABLE 4.—Discharged from the service by reason of physical disability during the calendar year 1919—Continued.

Disability.	Number.	Navy.		Marine Corps.	
		Officers.	Men.	Officers.	Men.
INJURIES—continued.					
Wound, incised, eye and adnexa, "L"	2		2		
Wound, incised, fingers, "K"	1				1
Wound, incised, fingers, "L"	6		6		
Wound, incised, hand, "H"	1		1		
Wound, incised, hand, "K"	1				1
Wound, incised, hand, "L"	5		5		
Wound, incised, jaw, "L"	1		1		
Wound, incised, knee, "L"	1		1		
Wound, incised, neck, "A"	1		1		
Wound, lacerated, abdomen, "K"	15				15
Wound, lacerated, ankle, "E"	1		1		
Wound, lacerated, ankle, "K"	16				16
Wound, lacerated, arm, "K"	68			1	67
Wound, lacerated, arm, "L"	2		2		
Wound, lacerated, back, "K"	24				24
Wound, lacerated, elbow, "K"	10				10
Wound, lacerated, eye and adnexa, "E"	2		2		
Wound, lacerated, eye and adnexa, "F"	1				1
Wound, lacerated, eye and adnexa, "H"	1		1		
Wound, lacerated, eye and adnexa, "K"	24		1	2	21
Wound, lacerated, eye and adnexa, "L"	4		4		
Wound, lacerated, face, "K"	13				13
Wound, lacerated, fingers, "E"	1				1
Wound, lacerated, fingers, "H"	2		2		
Wound, lacerated, fingers, "K"	12				12
Wound, lacerated, fingers, "L"	2		2		
Wound, lacerated, foot, "E"	3				3
Wound, lacerated, foot, "H"	1		1		
Wound, lacerated, foot, "I"	1		1		
Wound, lacerated, foot, "K"	45				45
Wound, lacerated, foot, "L"	4		3		1
Wound, lacerated, forearm, "E"	2				2
Wound, lacerated, forearm, "K"	48		1	1	46
Wound, lacerated, forearm, "L"	2		1		1
Wound, lacerated, hand, "E"	6		4	1	1
Wound, lacerated, hand, "H"	5		5		
Wound, lacerated, hand, "I"	2		2		
Wound, lacerated, hand, "L"	5		4		1
Wound, lacerated, hand, "K"	71				71
Wound, lacerated, head, "K"	29				29
Wound, lacerated, head, "L"	1		1		
Wound, lacerated, hip, "K"	17				17
Wound, lacerated, jaw, "K"	9				9
Wound, lacerated, knee, "E"	1				1
Wound, lacerated, knee, "K"	33		1	3	29
Wound, lacerated, leg, "G"	1		1		
Wound, lacerated, leg, "K"	115		1	1	113
Wound, lacerated, leg, "L"	1		1		
Wound, lacerated, lower extremity, "K"	5			1	4
Wound, lacerated, mouth, "K"	1				1
Wound, lacerated, multiple, "K"	149		4	2	143
Wound, lacerated, neck, "K"	8				8
Wound, lacerated, pelvis, "K"	1				1
Wound, lacerated, penis, "K"	1				1
Wound, lacerated, rectum, "K"	1				1
Wound, lacerated, scapula, "K"	2				2
Wound, lacerated, shoulder, "J"	1				1
Wound, lacerated, shoulder, "K"	50				50
Wound, lacerated, thigh, "E"	1		1		
Wound, lacerated, thigh, "K"	183		6	1	177
Wound, lacerated, thorax, "K"	19			1	18
Wound, lacerated, toes, "K"	3				3
Wound, lacerated, upper extremity, "K"	2				2
Wound, lacerated, wrist, "G"	3		2		1
Wound, lacerated, wrist, "K"	7				7
Wound, lacerated, wrist, "L"	2		1		1
Wound, punctured, abdomen, "F"	2		2		
Wound, punctured, abdomen, "K"	10				10
Wound, punctured, ankle, "E"	1				1
Wound, punctured, ankle, "K"	12		1		11
Wound, punctured, arm, "E"	1				1
Wound, punctured, arm, "K"	37		1		36
Wound, punctured, back, "K"	9				9



## INVALIDED FROM THE SERVICE—Continued.

TABLE 4.—Discharged from the service by reason of physical disability during the calendar year 1919—Continued.

Disability.	Number. •	Navy.		Marine Corps.	
		Officers.	Men.	Officers.	Men.
INJURIES—continued.					
Wound, punctured, elbow, "K"	7				7
Wound, punctured, eye and adnexa, "E"	1		1		
Wound, punctured, eye and adnexa, "K"	10				10
Wound, punctured, eye and adnexa, "L"	5		5		
Wound, punctured, face, "K"	10				10
Wound, punctured, fingers, "K"	1				1
Wound, punctured, foot, "E"	2				2
Wound, punctured, foot, "K"	26				26
Wound, punctured, foot, "L"	1				1
Wound, punctured, forearm, "K"	15				15
Wound, punctured, hand, "E"	4		4		
Wound, punctured, hand, "K"	22		1		21
Wound, punctured, hand, "L"	1		1		
Wound, punctured, head, "K"	5				5
Wound, punctured, hip, "E"	1				1
Wound, punctured, hip, "K"	6				6
Wound, punctured, jaw, "K"	2				2
Wound, punctured, knee, "E"	1		1		
Wound, punctured, knee, "K"	14			1	13
Wound, punctured, leg, "E"	1				1
Wound, punctured, leg, "K"	37			1	36
Wound, punctured, leg, "L"	1		1		
Wound, punctured, lung, "K"	4				4
Wound, punctured, multiple, "K"	31		1		30
Wound, punctured, neck, "K"	7				7
Wound, punctured, rib, "K"	1				1
Wound, punctured, scapula, "K"	1				1
Wound, punctured, scrotum, "K"	1				1
Wound, punctured, shoulder, "K"	18			1	17
Wound, punctured, thigh, "E"	3		3		
Wound, punctured, thigh, "K"	65		2	1	62
Wound, punctured, thigh, "L"	1		1		
Wound, punctured, thorax, "E"	2		1		1
Wound, punctured, thorax, "K"	42			2	40
Wound, punctured, toes, "K"	1				1
Wound, punctured, upper extremity, "K"	1				1
Wound, punctured, wrist, "K"	4				4
Total for injuries	2,229	4	597	22	1,806
Poison, alcohol (ethyl), chronic, "L"	4		4		
Poison, alcohol (methyl), acute, "L"	1		1		
Poison, chloroform, chronic, "L"	1				1
Poison, cocaine, chronic, "L"	4		3		
Poison, food, animal, chronic, "L"	1		1		
Poison, heroin, chronic, "L"	5		5		
Poison, mercuric chloride, acute, "L"	1		1		
Poison, morphine, chronic, "L"	6		6		
Poison, warfare gas, acute, "K"	8				8
Poison, warfare gas, chronic, "K"	283		13		270
Poison, arsenic compound, acute (antisyphilitic treatment), "L"	1				1
Total for poisons	315	0	35	0	280

TABLE 4 (SUPPLEMENTARY).—Discharged from the service—Naval Reserve Force (female)—by reason of physical disability under Class XXIV during the calendar year 1919.

Disability.	Number.	Disability.	Number.
Abcess, pelvic	1	Pregnancy	20
Displacement of uterus, unqualified	1	Salpingitis, acute	1
Dysmenorrhea	3	Salpingitis, chronic	3
Menorrhagia	4		
Metritis, chronic	1	<b>Total</b>	<b>36</b>
Metrorrhagia	2		

## OPERATIONS.

TABLE 5.—*Report of surgical operations for the calendar year 1919.*

Operation.	Result.					Anesthetic employed.					
	Cured.	Died.	Improved.	Unimproved.	Transferred.	Chloroform.	Ether.	Ether with other.	Gas.	Other general.	Local or none.
Abcess (cause, location, and operation not stated)	58			1		2	10		5		42
Abcess, abdominal, drained	9		2		1	1	7	1	2		1
Abcess about rectum, incision and drainage	70		6			3	29	1	8	4	21
Abcess, arm, incision and drainage	11				1	1	2	3			6
Abcess, axilla, incision and drainage	9						3	1			5
Abcess, back	7		2				4		1		4
Abcess, brain, decompression and drainage		1					1				
Abcess, buttock	4										4
Abcess, chest, incision and drainage	5		3				2		4		2
Abcess, face, incision (died; septicemia)		1	1					1	1		
Abcess, finger, amputation	1		2				1				2
Abcess, finger, incision and drainage	1								1		
Abcess, foot, incision and drainage	5						1				4
Abcess, hand, incision	19					1	6	1	5		6
Abcess, jaw, incision and drainage	6					2			2		2
Abcess, kidney (perinephritic), incision and drainage (died; 1 toxemia)	4	1	4				6	1	2		
Abcess, leg, incision and drainage	11		2	1		5			2		7
Abcess, liver, incision and drainage (died; 1 peritonitis, 3 toxemia)		4			2		6				1
Abcess, lung, thoracotomy (died; septicemia)	1	1		1			12				15
Abcess, lymph node, incision	31		3				3	1	5		1
Abcess, neck, incision	14		1				3	1	1		10
Abcess, pelvic	1							1			
Abcess, perineum, incision and drainage	3								1		2
Abcess, peritonsillar, incision	25										25
Abcess, prostate, incision and drainage	1				1		2				
Abcess, sacral, curettage and drainage	5		1				6				
Abcess, salivary gland, incision	3					1	2				
Abcess, scalp, incision and drainage	2										2
Abcess, scrotal, incision and drainage	4						2		1		1
Abcess, subphrenic, resection			2				2				
Abcess, thigh, incision	7						3	1	3		
Adenoids, adenectomy	356						59	4	11		282
Adenoma, breast, amputation	2						2				
Adenoma, breast, excision	5						4		1		
Adenoma, unqualified, excision	5						3		1		1
Adhesions of peritoneum, broken up or divided (died; exhaustion)	23	1	14	1	1	1	39				
Amputation stump, curettage			2		1		3				
Amputation stump, plastic repair			2				2				
Amputation stump, reamputation	18		17	13	8	1	46	2	5		2
Amputation stump, sequestrectomy			1				1				
Amputation stump, skin graft	2						1				1
Aneurism:											
Brachial artery, ligation and excision				1			1				
Femoral artery, ligation and excision	1						1				
Radial artery, ligation and excision	2						2				
Temporal artery, ligation and excision	1						1				
Angioma, excision	3						2				1
Ankylosis of joint:											
Ankle, manipulation	1			1			2				
Ankle, osteotomy	1		1				2				
Elbow, arthroplasty			2	1			3				
Elbow, manipulation	3		2				2		3		
Elbow, resection	1						1				
Finger, amputation	8		4				9	2			1
Finger, resection	2		1						2		1
Knee, arthrotomy	1						1				
Knee, manipulation			5				3	1	1		
Phalangeal, plastic repair	1		1				2				
Unqualified, arthroplasty	1						1				
Unqualified, manipulation			1				1				
Wrist, arthroplasty			1				1				
Wrist, manipulation			1						1		
Appendicitis, acute, appendectomy (died; 1 carcinoma, 2 embolism, 9 peritonitis, 1 pneumonia, 3 septicemia)	1,309	16	15	4	61	4	1,418	21	4	2	16
Appendicitis, chronic, appendectomy. (Died: 1, embolism: 1, peritonitis)	551	2	22	1	12		557	21	7		3
Arthritis, acute, finger, amputation					1		1				
Arthritis, acute, knee, arthrotomy	1						1				

### OPERATIONS—Continued.

**TABLE 5.—Report of surgical operations for the calendar year 1919—Continued.**

Operation.	Result.					Anesthetic employed.					
	Cured.	Died.	Improved.	Unimproved.	Transferred.	Chloroform.	Ether.	Ether with other.	Gas.	Other general.	Local or none.
Arthritis, chronic, ankle, arthrotomy	1						1				
Arthritis, chronic, knee, arthrotomy			2	1			3				
Atrophy of testicle	4						4				
Avulsion, finger, amputation	7						5				2
Avulsion, hand, amputation	1						3				
Avulsion, toe, amputation	1				2						
Balanoposthitis, circumcision	7		2				1				
Burn:											
Arm, skin graft	2						1				1
Face, plastic repair	1		2				1				2
Finger, amputation			2				1				1
Leg, skin graft	1		1				2				
Scalp, plastic repair	1						1				
Multiple, skin graft			1				1				
Burns, chronic, excision	24						30		1		3
Calculus in ureter, calculus removed	3						3				
Callositas, foot, excision	3										
Carbuncle:											
Face, incision	1										1
Neck, incision and drainage	1								1		
Unqualified, incised and drained	16		1				2		7		5
Carcinoma:											
Larynx, laryngectomy (died; hemorrhage)		1					1				
Lip, excision	1						1				
Liver, laparotomy		1					1				
Stomach, gastroenterostomy	1						1				
Testicle, excision			1				1				
Transverse colon, resection		2					2				
Cataract, excision	3										3
Cellulitis:											
Ankle, incision and drainage			1						1		
Arm, incision and drainage (died; septi-		1							2		1
Arm, skin graft	1						1				
Finger, amputation	1						1				
Finger, incision	6		1			1	4				2
Foot, amputation	1						1				
Foot, incision	7						1		4		2
Hand, incision	10						2		8		
Knee, incision	1		1						2		
Leg, amputation			1						1		
Leg, incision	7						3		2		2
Neck, incision	2						2				
Unqualified, incision	20		2	3	2	4	10		8		14
Cerebro-spinal fever, decompression and ven-											
tricular puncture		1									1
Chalazion, excision	26		1				1				26
Chancroid of lymph node, incision	72		27		2	1	26		2		72
Cholecystitis, cholecystotomy (died; 2 tox-											
emia)	12	2	4				18				
Cholelithiasis, cholelithotomy	1			1			2				
Cholangitis, cholecystectomy	1						1				
Chondroma, excision	3						1				2
Cicatricial contraction:											
Finger, amputation	2		1				2				1
Finger, tenoplasty	1						1				
Hand, plastic repair	1		1				1				1
Leg, plastic repair	2						2				
Unqualified, plastic repair	10		3				11		1		1
Cicatrix of skin:											
Arm, excision	1		1				1				1
Arm, plastic repair	1						1				3
Face, excision			4				1				2
Finger, excision	3								1		3
Hand, plastic repair			1				1				
Leg, excision	2		2				2		1		1
Thigh, excision			2				2				
Unqualified, excision	21		3	2			21				5
Unqualified, plastic repair	2		1				1		1		1
Clavus, excision	1										1
Contracture of joint, metatarsal, excision	2						2				
Contraction of tendon, finger, amputation	1										

## OPERATIONS—Continued.

TABLE 5.—Report of surgical operations for the calendar year 1919—Continued.

Operation.	Result.					Anesthetic employed.				
	Cured.	Died.	Improved.	Unimproved.	Transferred.	Chloroform.	Ether.	Ether with other.	Gas.	Other general. Local or none.
Contusion:										
Finger, amputation.....	4		1				2			2
Hand, amputation.....					1		1			
Toe, amputation.....	1						1			
Crush:										
Arm, amputation.....				1			1			
Face, plastic repair.....			2			2				
Finger, amputation.....	15		1	1			11		1	5
Finger, suture.....			1				1			
Foot, amputation.....	1		1				1			1
Foot, plastic repair.....			1				1			1
Hand, amputation.....			2				2			
Leg, amputation.....			3				3			
Legs, amputation.....			1				1			
Toe, amputation.....	4						4			
Wrist, suture.....	1						1			
Cystoma:										
Abdomen, excision.....	1									1
Arm, excision.....	1						1			
Breast, excision.....	3						2			1
Buttocks, excision.....	1									1
Cheek, excision.....	3									3
Ear, excision.....	5									5
Hand, excision.....	5						1			4
Leg, excision.....	1									1
Neck, excision.....	20		1				5			16
Orbit, excision.....	1						1			
Ovary, curettage and resection.....	1						1			4
Scalp, excision.....	4									4
Scrotum, excision.....	3						2			1
Unqualified, excision.....	54		3	1		1	29	1	2	25
Dacryocystitis, excision of sac.....	1									
Deviation nasal septum, submucous resection.....	1,228		20	1			11	2		1,236
Dislocation of:										
Cartilage, knee, chondrectomy.....	17		3				18		1	1
Clavicle, open reduction.....			1				1			
Clavicle, osteotomy.....	1		2				3			
Clavicle, suture.....	1						1			
Elbow, open reduction.....	1						1			
Humerus, open reduction (died; hemorrhage).....		1					1			
Phalanges, hand, amputation.....	1						1			
Phalanges, hand, open reduction.....	3					1	1			1
Displacement of uterus, hysterectomy.....	2						3			
Ectropion, plastic repair.....	2		2				3			1
Elongation of uvula, amputation.....	2									2
Emphysema, pulmonary, aspiration.....	3								2	1
Endometritis, curettage.....	6		1				6			
Epididymitis, epididymotomy (died; embolism).....	62	1	5	2			52		4	14
Epilepsy, exploratory, intracranial.....				1			1			
Epithelioma, unqualified, excision.....	10						7			3
Fibroma, knee, excision.....	1						1			
Fibroma, neck, excision.....	1									1
Fibroma, spermatic cord, excision.....	1									1
Fibroma, testicle, orchidectomy.....	1						1			
Fibroma, unqualified, excision.....	4						2			2
Fissure of anus, incision and curettage.....	12		1				8	1	3	1
Fistula, fecal, resection and closure.....	3						7			
Fistula in ano, incision and curettage.....	132		9	2	1	1	119	5	10	9
Fistula of larynx, curettage and suture.....			1							1
Fistula of urethra, urethrotomy.....	1									1
Foreign body, traumatic:										
Arm, excision.....	5				1		4			2
Back, excision.....	3		1	1			3		2	
Buttock, excision.....			1	1			1			1
Chest, excision.....	2		1				2			1
Elbow, excision.....	1				1		1			1
Face, excision.....			1							1
Foot, excision.....	1									1
Hand, excision.....	6						2		1	3
Knee, arthrotomy.....			1				1			
Knee, excision.....	5				1		5			2
Leg, excision.....	3			1			1		1	

## OPERATIONS—Continued.

TABLE 5.—Report of surgical operations for the calendar year 1919—Continued.

Operation.	Result.					Anesthetic employed.					
	Cured.	Died.	Improved.	Unimproved.	Transferred.	Chloroform.	Ether.	Ether with other.	Gas.	Other general.	Local or none.
Foreign body, traumatic—Continued.											
Shoulder, excision.....	3						2		1		
Thigh, excision.....	2		1	1			2		1		1
Thorax, exploratory incision.....				1			1				
Toe, excision.....	1								1		
Wrist, excision.....	2		1				1				2
Fracture of:											
Carpus, compound, osteotomy.....	4		3				6		1		
Clavicle, compound, clavicotomy.....	2						2				
Clavicle, compound, suture.....	2						2				
Clavicle, simple, clavicotomy.....	3		1				3				1
Clavicle, simple, open reduction.....	5		1				5	1			
Clavicle, simple, suture.....	1						1				
Clavicle, simple, wired.....	1						1				
Coccyx, simple, excision.....	2						2				
Femur, compound, amputation.....			3				3				
Femur, compound, bone graft.....	1		1				2				
Femur, compound, curettage.....			2		4		6				
Femur, compound, fixation (plates).....	2		3				5				
Femur, compound, open reduction.....	1		4	1			5		1		
Femur, compound, osteotomy.....			1	1			1				
Femur, compound, plates removed.....			1	1			1				
Femur, compound, sequestrotomy.....			1								1
Femur, simple, fixation (plates).....			2				2				
Femur, simple, plates removed.....	1		1				2				
Femur, simple, sequestrotomy.....			1					1			
Femur, simple, traction pins inserted.....			1	1			1		1		
Fibula, compound, open reduction.....	1						1				
Fibula, compound, sequestrotomy.....	1						1				
Fibula, simple, curettage.....	1						1				
Fibula, simple, osteotomy.....			1				1				
Humerus, compound, bone graft (died: septicemia).....		1	3	1			5				
Humerus, compound, curettage.....	3		1		1		5				
Humerus, compound, fixation (plates).....	1		3				4				
Humerus, compound, open reduction.....			1				1				
Humerus, compound, plates removed.....	2						2				
Humerus, compound, sequestrotomy.....	2		4				5		1		
Humerus, compound, wired (died: septicemia).....		1	1				2				
Humerus, simple, bone graft.....			1				1				
Humerus, simple, fixation (plates).....	1						1				
Humerus, simple, sequestrotomy.....	3		1				4				
Malar bone, simple, open reduction.....	1						1				
Maxilla, inferior, compound, wired.....	1		1		1		2		1		
Maxilla, inferior, simple, wired.....	3						3				
Metacarpus, simple, arthroplasty.....			1				1				
Metacarpus, simple, open reduction.....	1		1				2				
Metacarpus, simple, resection.....	1						1				
Metacarpus, simple, sequestrotomy.....	1		1				2				
Metacarpus, simple, suture.....	1						1				
Metatarsus, compound, open reduction.....	1		1					1	1		
Metatarsus, compound, sequestrotomy.....			1				1				
Multiple, compound, suture.....	1						1				
Os calcis, compound, fixation (Stineman's pins).....				1			1				
Patella, compound, open reduction.....				3			3				
Patella, simple, arthroplasty.....	2							1	1		
Patella, simple, suture.....	2		4		1			6			1
Patella, simple, wired.....	1		3				4				
Pelvis, compound, exploratory incision (died: hemorrhage).....		1							1		
Pelvis, compound, sequestrotomy.....	1										1
Phalanges, finger, compound, amputation.....	5		2		1		4		1		3
Phalanges, finger, compound, curettage.....	1							1			
Phalanges, finger, compound, open reduction.....	1							1			
Phalanges, finger, compound, suture.....	2						2				
Phalanges, toe, compound, amputation.....	1		1		1		3				
Phalanges, toe, compound, sequestrotomy.....	2						1				1
Radius, compound, amputation.....			1				1				
Radius, compound, bone graft.....			3				3				
Radius, compound, curettage.....					1		1				

## OPERATIONS—Continued.

TABLE 5.—Report of surgical operations for the calendar year 1919—Continued.

Operation.	Result.					Anesthetic employed.				
	Cured.	Died.	Improved.	Unimproved.	Transferred.	Chloroform.	Ether.	Ether with ether.	Gas.	Other general.
Fracture of—Continued.										
Radius, compound, fixation (plates).....	2						2			
Radius, compound, suture.....			1				1			
Radius, simple, bone graft.....			1				1			
Radius, simple, fixation (plates).....	2						2			
Radius, simple, open reduction.....	1						1			
Radius, simple, osteotomy.....			2		1		1		2	
Radius, simple, removal of plate.....	2		1				3			
Radius, simple, sequestrotomy.....	1		1				2			
Radius, simple, suture.....			1				1			
Radius, simple, wired.....	1									1
Radius and humerus, simple, fixation (plates).....	1						1			
Radius and ulna, compound, bone graft.....			3				3			
Radius and ulna, compound, open reduction.....	1						1			
Radius and ulna, compound, sequestrotomy.....	1						1			
Radius and ulna, simple, bone graft.....			1		1		2			
Scaphoid, simple, sequestrotomy.....	3		1				2	2		
Skull, compound, decompression (died; 1 hemorrhage, 1 shock).....	5	2	1				8			
Skull, compound, trephine (died; hemorrhage).....	1	1					2			
Skull, simple, decompression.....	3						3			
Skull, simple, osteoplastic flap (died; hemorrhage).....		1							1	
Tibia, compound, amputation.....			1				1			
Tibia, compound, bone graft.....			1		1		2			
Tibia, compound, curettage.....	1				1		1	1		
Tibia, compound, fixation (plates).....	5		1				6			
Tibia, compound, plate removed.....	2						1	1		
Tibia, compound, sequestrotomy.....	3						3			
Tibia, compound, suture.....			1				1			
Tibia, compound, wired.....	1				1		2			
Tibia, simple, curettage.....			1				1			
Tibia, simple, fixation (nails).....	1		1				2			
Tibia, simple, open reduction.....	1		2				3			
Tibia, simple, sequestrotomy.....	1						1			
Tibia, simple, wired.....	1						1			
Tibia and fibula, compound, amputation (died; shock).....	2	1	1	1			4	1		
Tibia and fibula, compound, curettage.....	1		3	1	1		6			
Tibia and fibula, compound, exploratory incision.....				1			1			
Tibia and fibula, compound, fixation (plates).....	3						2		1	
Tibia and fibula, compound, incision and drainage.....			2		1		1		1	
Tibia and fibula, compound, open reduction.....							2			
Tibia and fibula, compound, osteotomy.....			1				1			
Tibia and fibula, compound, plate removed.....			1				1			
Tibia and fibula, compound, sequestrotomy.....			5				4		1	
Tibia and fibula, simple, fixation (plates).....				1			1			
Tibia and fibula, simple, fixation (screws).....	1						1			
Tibia and fibula, simple, osteotomy.....			1				1		1	
Ulna, compound, bone graft.....			1				1			
Ulna, compound, sequestrotomy.....			2				2			
Ulna, simple, exploratory incision.....			1						1	
Ulna, simple, osteoplastic repair.....	1									1
Ulna, simple, fixation (plates).....	2						2			
Ulna, simple, osteotomy.....	1								1	
Ulna, simple, suture.....	1						1			
Ulna, simple, wired.....	1						1			
Vertebra, compound, bone graft.....			1				1			
Vertebra, simple, refracture.....			1				1			
Furunculosis, arm, incision and drainage.....	2				1					
Furunculosis, ear, incision.....	1						1			
Ganglion, hand, excision.....	5						1			1
Ganglion, unqualified, excision.....	4						1			1
Gangrene, finger, amputation.....	2						1			
Gangrene, toe, amputation.....	2		1				2			1

## OPERATIONS—Continued.

TABLE 5.—Report of surgical operations for the calendar year 1919—Continued.

Operation.	Result.					Anesthetic employed.					
	Cured.	Died.	Improved.	Unimproved.	Transferred.	Chloroform.	Ether.	Ether with other.	Gas.	Other general.	Local or none.
Gastroenteritis, gastroenterostomy.....	4						3	1			
Gastritis chronic catarrhal, exploratory incision.....			1				1				
Goiter, thyroidectomy.....	14		9	1			22	1			1
Gonococcus infection of:											
Conjunctiva, enucleation.....			1				1				
Epididymis, epididymotomy.....	17		2				19				
Lymph node, incision.....	2										2
Urethra, circumcision.....			5								5
Hallux valgus Mayo.....	24		1			1	21		2		1
Hammer toe, amputation.....	40		4				16		1		27
Hammer toe, tenotomy.....	5		1				3		2		1
Hematoma abdominal, incision.....	2						2				
Hematuria renal, nephrectomy.....			1				1				
Hemorrhoids, removal and repair.....	903		27		5		685	7	10		233
Hernia:											
Abdominal, herniotomy.....			1				1				
Epigastric, herniotomy.....	14		1				13		1		1
Femoral, herniotomy.....	10		2				10				2
Inguinal, herniotomy.....	1,613	1	16		14	4	1,561	27	3		49
(Died: ether poisoning).											
Inguinal (double), herniotomy.....	2						2				
Muscle repair.....	6						6				
Sheath repair.....	1						1				
Umbilical, herniotomy.....	4		1				5				
Ventral, herniotomy.....	43		4				45				2
Hodgkin's disease, excision of aneurism.....	1										1
Hydrocele, excision and repair.....	135				1	1	113	2	1		19
Hydronephrosis, nephrectomy.....			2	1			3				
Hyperchylia gastric, laparotomy.....	1							1			
Hypertrophy of bone:											
Clavicle, osteotomy.....			1				1				
Humerus, osteotomy.....	3						3				
Nose, turbinectomy.....	11										11
Toe, resection.....	1		1				1				1
Unqualified, resection.....	2		1				3				
Hypertrophy of mammary gland, excision.....	2						1				1
Hypertrophy of tonsil, tonsillectomy (died; 1 dilatation acute cardiac, 1 status lymphaticus).....	4,247	2	4				885	31	4		3,333
Ingrowing nail, excision.....	164		4				20	1	7		140
Intracranial injury, decompression (died: Hemorrhage).....	1	1					2				
Intraspinal injury, laminectomy.....				1			1				
Iridocyclitis traumatic, enucleation.....	1						1				
Laceration of cervix uteri, repair.....	2		1				1	2			
Lipoma:											
Abdominal, excision.....	1						1				
Arm, excision.....	4										4
Axilla, excision.....	1						1				
Back, excision.....	1										1
Breast, excision.....	4						4				
Chest, excision.....	1						1				
Forearm, excision.....	2										2
Knee, excision.....	1										1
Shoulder, excision.....	1										1
Thigh, excision.....	1						1				
Unqualified, excision.....	16		1				8				9
Loose body in joint:											
Knee, arthrotomy.....	6		3				8				1
Wrist, arthrotomy.....	3						2				1
Lymphadenitis, acute:											
Axilla, incision and drainage.....	1						1				
Cervical, excision.....	19		5				15	1	1		7
Cervical, incision.....	5		1	1			6				1
Inguinal, excision.....	41		4		1	1	21		6		18
Inguinal, incision.....	49						22		5		22
Unqualified, excision.....	11		1			1	9		2		3
Lymphangioma, excision.....	1						1				
Lymphoma, neck, excision.....	1						1				
Malformation, congenital, amputation (toes).....	5						3				2
Malformation, congenital, plastic repair.....	3		2				4				1
Malformation, congenital, syndactomy.....	1										1



## OPERATIONS—Continued.

TABLE 5.—Report of surgical operations for the calendar year 1919—Continued.

Operation.	Result.					Anesthetic employed.				
	Cured.	Died.	Improved.	Unimproved.	Transferred.	Chloroform.	Ether.	Ether with other.	Gas.	Other general. Local or none.
Mastitis, chronic, amputation of breast.....	1						1			
Mastoiditis, mastoidectomy (died; 1 abscess of brain, 5 meningitis, 3 septicaemia, 1 thrombosis, 1 toxemia).....	180	11	37	10	4	1	198	8	4	1
Mixed benign tumor, excision.....	1						1			
Multiple injuries, extreme, exploratory incision (died; 2 shock).....		2					1			1
Multiple injuries, extreme, splenectomy (died; embolism).....		1					1			
Myoma, exploratory incision.....				1			1			
Myelitis, disseminated, foot, amputation.....			1				1			
Necrosis of bone:										
Femur, sequestrotomy.....			2						2	
Humerus, sequestrotomy.....			1				1			
Maxilla, inferior, curettage.....	1		2				3			
Maxilla, inferior, sequestrotomy.....			1				1			
Metatarsal, amputation toe.....	1								1	
Phalanges, amputation toe.....	1								1	
Rib, curettage.....	3		1					1	3	
Tibia, curettage.....	1		1				2			
Tibia, excision.....	1						1			
Unqualified, curettage.....	3		6				7		1	1
Nephrolithiasis, nephrectomy.....	2		1				3			
Nephrolithiasis, nephrolithotomy.....	5		1				5		1	
Neurasthenia, exploratory incision of bladder.....	1						1			
Neuroma, resection.....	2						1		1	
Nevus, excision.....	1									1
No disease, exploratory laparotomy.....					1		1			
Obstruction, acute, intestinal, colostomy (died; 1 peritonitis, 1 shock).....		2					2			
Obstruction, acute, intestinal, enterostomy (died; 2 shock, 2 toxemia).....										
Obstruction, acute, intestinal, laparotomy (died; 2 peritonitis, 3 shock, 1 toxemia).....		4					3	1		
Oophoritis, chronic, oophorectomy.....	6	6	6	2			17	3		
Orchitis, chronic, orchidectomy.....	1		2				3			
Osteitis deformans, foot, curettage.....	1						1			
Osteoma:										
Femur, osteotomy.....	7		1				8			
Humerus, excision.....			1				1			
Metacarpal, excision.....	1						1			
Metatarsal, excision.....	5						5			
Phalanges, hand, excision.....	1									1
Tibia, excision.....	5		1				6			
Unqualified, excision.....	10						9			1
Osteomyelitis:										
Clavicle, resection.....			1				1			
Clavicle, sequestrotomy.....			2				2			
Femur, amputation (died; septicaemia).....		1							1	
Femur, curettage (died; embolism).....	1	1	8	2			8	1	3	
Femur, osteotomy (died; septicaemia).....		1	5							
Femur, sequestrotomy.....	1							1		
Fibula, osteotomy.....	1		1				2			
Humerus, curettage.....	3		2				5			
Humerus, sequestrectomy.....	1		6				7			
Ilium, curettage.....	1							1		
Maxilla, inferior, curettage.....			1				1			
Metatarsal, sequestrectomy.....	1		4				5			
Phalanges, hand, amputation.....	6						3		1	2
Phalanges, hand, curettage.....	1								1	
Phalanges, foot, amputation.....	3						2			1
Radius, bone graft.....			1				1			1
Radius, curettage.....			1				1			
Radius and ulna, curettage.....			1				1			
Rib, excision.....			1				1			
Skull, sequestrotomy.....			1				1			
Tibia, curettage.....	7		9		1		16	1		
Ulna, curettage.....			1				1			
Unqualified, amputation.....	1	1	1				1			1
Unqualified, curettage (died; embolism).....	16	1	20	3	3		36		4	3
Unqualified, plastic repair.....	1		1				2			
Unqualified, sequestrotomy.....	2		2				3		1	



## OPERATIONS—Continued.

TABLE 5.—Report of surgical operations for the calendar year 1919—Continued.

Operation.	Result.					Anesthetic employed.					
	Cured.	Died.	Improved.	Unimproved.	Transferred.	Chloroform.	Ether.	Ether with other.	Gas.	Other general.	Local or none.
Otitis externa, curettage.....	1										1
Otitis externa, incision and drainage.....	10		1				3				8
Otitis media, acute, paracentesis.....	33		8	7	1	3	9	2			37
Otitis media, chronic, mastoidectomy.....	1				1		2				
Panophthalmitis, enucleation.....	2						2				
Papilloma:											
Back, excision.....	1				1						2
Bladder, cystotomy.....	1						1				
Hand, excision.....	1										1
Head, excision.....	1										1
Penis, excision and circumcision.....	1										1
Rectum, excision.....	1										1
Unqualified, excision.....	6					1	1				1
Paraphimosis, circumcision.....	2		1				4	1			2
Paralysis of nerve, repair and transplantation.....			2				2				
Periostitis, fibula, curettage.....	1						1				
Periostitis, tibia, incision and drainage.....	2										2
Periostitis, unqualified, incision and curettage.....	4		2	2			5				3
Peritonitis, acute, general, laparotomy (died; 3 toxemia).....		3		1							
Peritonitis, acute, local, laparotomy.....	2						2				
Pes cavus, tenorrhaphy.....	1						1				
Phimosis, circumcision.....	743		4			3	77		5		662
Pleurisy, serofibrinous, incision and drainage.....	2		1								3
Pleurisy, suppurative, thoracotomy (died; 1 pericarditis, 10 septicaemia, 7 toxemia).....	76	18	97	4	11	5	41	2	36		122
Pneumonia, lobar, paracentesis.....	1										1
Polypus, nasal, removal.....	35		6	1			1		1		40
Prolapse of rectum, cauterization.....	1			2							
Prolapse rectum, resection.....	1						2	1			
Prostatitis, chronic, prostatectomy.....	1										
Pterygium, excision and repair.....	56		5				2				59
Pyrocephalitis, incision and drainage.....	1		3		1		5				
Redundant prepuce, circumcision.....	907		6	3		2	32		2		875
Redundant scrotum, resection.....	3										1
Retinitis, craniotomy.....	1						1				
Rhinitis, atrophic, curettage.....	1						1				
Rhinitis, atrophic, plastic repair.....			2				2				
Rhinitis, hypertrophic, turbinectomy.....	26		5				2				29
Rupture of bladder, suture.....	1						1				
Rupture eye (globe), enucleation.....			1				1				
Rupture of kidney, traumatic, nephrectomy.....			2				1		1		
Rupture of liver, traumatic, exploratory laparotomy (died; shock).....		1					1				
Salpingitis, chronic, salpingectomy.....	3		2				5				
Sarcoma:											
Bladder, cystotomy.....			1				1				
Finger, curettage.....	1						1				
Inguinal, excision.....				1					1		
Knee, incision.....	1	1									
Ovary, salpingo-oophorectomy.....	1						1				
Rectum, excision.....	1		1								2
Testicle, excision.....	1	1					2				
Tibia, amputation.....				1					1		
Tibia, curettage.....	1						1				
Tibia, excision.....				2			2				
Unqualified, curettage.....	2		2				4				
Sinus:											
Abdominal, excision and repair.....	2						1				1
About rectum, incision and curettage.....	1										1
Arm, incision and drainage.....	1								1		
Back, curettage.....	1								1		
Cervical, curettage.....	1		1				1				1
Chest, thoracotomy.....			1								1
Coccygeal, curettage.....	4						4				
Knee, incision and suture.....	1						1				
Lumbar, curettage.....			1				1				
Mastoid, plastic repair.....	3							3			
Sacral, excision.....	1						1				
Scrotum, excision.....	1								1		
Thigh, excision.....	1						1				

## OPERATIONS—Continued.

TABLE 5.—Report of surgical operations for the calendar year 1919—Continued.

Operation.	Result.					Anesthetic employed.				
	Cured.	Died.	Improved.	Unimproved.	Transferred.	Chloroform.	Ether.	Ether with other.	Gas.	Other general.
Sinusitis, ethmoidal, ethmoidectomy	2		2							4
Sinusitis, frontal, evacuation of antrum	14		5				2	1		15
Sinusitis, maxillary, curettage and drainage	36		18		1		15	1		52
Spur on nasal septum, excision	6									5
Stenosis of pylorus, gastroenterostomy	1						1			
Stricture of rectum, dilatation	3						3			
Stricture of urethra, aspiration of bladder			1				1			
Stricture of urethra, urethrotomy	5						4			1
Synechia, synechotomy	3									3
Synovitis, traumatic, knee, arthrotomy			3				2			1
Syphilis, excision of glands (inguinal)	3		5	1			2			7
Syphilis, plastic repair of perforated palate	1				1					1
Tenosynovitis, excision	1									1
Teratoma, sacro-coccygeal, excision	3		1				3			1
Thrombosis, ligation and excision			1				1			
Thyroiditis, chronic, thyroidectomy	5		1				6			
Torsion of omentum, laparotomy	1		1				2			
Trachoma, curettage	2		3				4			1
Tuberculosis:										
Abdominal, incision and drainage	2		4		1	1	4	1		1
Arm, amputation	1						1			
Foot, amputation			2				2			
Foot, sequestrectomy			1				1			
Glands, cervical, excision	5		6		1		12			
Glands, inguinal, excision	2		2		1		5			
Hip, incision	1						1			
Ovary, oophorectomy	1						1			
Sternum, excision and curettage			1				1			
Testicle, orchidectomy	1		1				1		1	
Tibia, excision and curettage	1						1			
Unqualified, incision and drainage	1		2	1			1		1	1
Vertebra, bone graft			2				2			
Wrist, excision	1								1	
Tumor, breast, excision	4						1			3
Tumor, cheek, excision	1									1
Tumor, unqualified, excision	2		1					2		1
Ulcer of:										
Duodenum, anastomosis			1				1			
Duodenum, gastroenterostomy	6		1				6		1	
Duodenum, inversion			1				1			
Duodenum, suture and drain (died; peritonitis)	1	1	2				4			
Intestine, exploratory laparotomy (died; peritonitis)		1					1			
Leg, excision	1								1	
Rectum, dilatation	1								1	
Skin, unqualified, skin graft	1						1		1	
Stomach, excision			1				1			
Stomach, gastroenterostomy (died; hemorrhage)	1	1	1	1			4			
Stomach, laparotomy (died; 2 peritonitis)	1	2	3		1		6		1	
Union of fracture faulty:										
Bone graft	2		5	2			9			
Chondrectomy	1						1			
Curettage	8		4	1	2		15			
Fixation and extension (Steinman pins)							1			
Open reduction	1		2	1	2		5		1	
Refracture	2		2				4			
Removal of foreign body	1						1			
Removal of plates			3		2		4			1
Sequestrectomy	2				1		3	1		
Suture	1			2						
Varicocele, excision and ligation	1,064		31		4		742	7	12	837
Varix, excision and ligation	147		13				125	3	2	30
Wart, excision	2									2
Wound, incised:										
Abdomen, laparotomy					1		1			
Ankle, suture	1						1			
Arm, ligation	1						1			
Bladder, suture	1						1			
Eye, suture	1		1							2
Face, plastic repair			2				2			

## OPERATIONS—Continued.

TABLE 5.—Report of surgical operations for the calendar year 1919—Continued.

Operation.	Result.					Anesthetic employed.					
	Cured.	Died.	Improved.	Unimproved.	Transferred.	Chloroform.	Ether.	Ether with other.	Gas.	Other general.	Local or none.
Wound, incised—Continued.											
Face, suture.....	1										
Finger, plastic repair.....			1				1				
Finger, suture.....	3										
Hand, amputation.....	2						1				
Hand, suture (died; ether poisoning).....	2	1	1				2	1			
Hand, tenorrhaphy.....	1		1	1			2				
Neck, suture.....	1										
Neck and face, plastic repair.....	1						1				
Throat, incision and drainage.....			1				1				
Tongue, suture.....	1										
Wound, lacerated:											
Ankle, sequestromy.....			1				1				
Ankle, skin graft.....	1						1				
Ankle, tenorrhaphy.....			1				1				
Arm, amputation.....	1		1				2				
Arm, bone graft.....			2				2				
Arm, curettage.....	4		3				7				
Arm, incision and drainage.....	1		2		1		4				
Arm, osteotomy.....	1		1						2		
Arm, removal of bullet.....	2						1				1
Arm, sequestromy.....			2				1		1		
Arm, skin graft.....	1						1				
Arm, suture.....	2		3	1			4		2		
Arm, tenotomy.....	1		1				2				
Back, exploratory incision.....				1			1				
Back, sequestrectomy.....	1						1				
Buttock, curettage.....	1						1				
Buttock, incision and drainage.....			3	1			3		1		
Chest, excision of foreign body.....					1		1				
Elbow, excision of scar.....	1						1				
Elbow, osteoplastic repair.....					1		1				
Elbow, plastic repair.....			1				1				
Eye, capsulotomy.....	1										1
Eye, enucleation.....	3		1				4				
Eye, plastic repair.....	6		3	1	1		5				6
Eyelid, plastic repair.....			2				2				
Face, plastic repair.....	2		7			2	7				
Face, suture.....	1						1				
Finger, amputation.....	15		6		2		15	1			7
Finger, sequestromy.....	1										1
Finger, suture.....	8		5	1			8				6
Foot, curettage.....			1				1				
Foot, incision.....	1		5		2		4				4
Foot, skin graft.....	2						2				
Foot, suture.....	1						1				
Foot, tenoplasty.....			1				1				
Foot, tenotomy.....			1				1				
Forearm, neuroplasty.....			1				1				
Forehead, osteoplastic repair.....			1				1				
Groin, exploratory laparotomy (died; peritonitis).....		1		1			2				
Hand, amputation.....	3		3		1		7				
Hand, curettage.....			1				1				
Hand, plastic repair.....			3				3				
Hand, sequestromy.....	1		1				1				1
Hand, suture.....	4				1		4		1		
Hand, tenotomy.....			1				1				
Hand, transplantation of tendon.....			1				1				
Head, incision and drainage.....			1								1
Head, plastic repair.....			1				1				
Head, suture.....	3										3
Knee, arthroscopy.....			1				1				
Knee, removal of foreign body.....	1						1				
Knee, suture.....	1								1		
Leg, amputation.....	1		1	1			3				
Leg, curettage.....	4		7		1		11		1		
Leg, incision and drainage.....	2		1			1	2				
Leg, removal foreign body.....	2		2				2		1		1
Leg, skin graft.....			2				1				1
Leg, suture.....	1						1				

## OPERATIONS—Continued.

TABLE 5.—Report of surgical operations for the calendar year 1919—Continued.

Operation.	Result.					Anesthetic employed.					
	Cured.	Died.	Improved.	Unimproved.	Transferred.	Chloroform.	Ether.	Ether with other.	Gas.	Other general.	Local or none.
Wound, lacerated—Continued.											
Leg, tenoplasty.....			1				1				
Multiple, curettage.....			1				1				
Penis, circumcision.....					1						1
Scalp, exploratory incision.....							2				
Scalp, removal of bullet.....	2										1
Scalp, suture.....	1		1								1
Shoulder, plastic repair.....			1				1				
Shoulder, repair.....	1						1				
Shoulder, sequestrotomy.....			1				1				
Thigh, curettage and drainage.....	1				2		3				
Thigh, incision.....	3		1	1			3		1		1
Thigh, plastic repair.....			3		2		4		1		
Thigh, sequestrotomy.....			3				3				
Thigh, skin graft.....			1				1				
Thigh, suture.....	3						3				
Thighs, removal of bullet.....	1						1				
Thorax, removal bone fragments.....	1						1				
Throat, curettage.....	1										1
Thumb, amputation.....	1		1				1				
Thumb, tenotomy.....			1				1				
Toe, amputation.....	2		1				3				
Wrist, plastic repair.....	1		1				2				
Wound, punctured:											
Abdomen, excision.....	2						1				1
Abdomen, laparotomy and drainage, (died: 1 peritonitis, 1 shock).....	2	2					2				2
Abdomen, nephrorrhaphy (died; septicemia).....		1					1				
Abdomen, suture.....	1						1				
Arm, bone graft.....	1		1				2				
Arm, excision of bone fragments.....	2		1				3				
Arm, exploratory incision.....			1				1				
Arm, osteotomy.....	2								2		
Arm, sequestrotomy.....			1				1				
Back, excision of foreign body.....	2										2
Buttock, curettage.....			3				3				
Chest, curettage.....			1				1				
Chest, removal of bullet.....	3						3				
Elbow, incision and curettage.....			1								1
Eye, enucleation.....	2						2				
Eye and adnexa, canthoplasty.....				1							1
Face, decompression (died; contusion of brain).....		1					1				
Face, plastic repair.....	2						2				
Foot, amputation.....	1										1
Foot, removal of foreign body.....	2						2				
Hand, amputation.....			1				1				
Hand, incision.....	1										1
Hand, suture.....			1				1				
Head, decompression.....					1				1		
Head, trephine.....					1		1				
Hip, excision of bone fragments.....			1				1				
Knee, curettage.....			1				1				
Leg, curettage.....			1	1	2		4				
Leg, excision.....	4				1		3		1		1
Leg, sequestrotomy.....					1			1			
Leg, tenorrhaphy.....			1				1				
Neck, removal of foreign body.....	1						1				
Pelvis, osteotomy.....			1						1		
Rectum, exploratory laparotomy.....				1			1				
Sacro-iliac, removal of bullet.....	1						1				
Shoulder, curettage.....	1		1	1			3				
Shoulder, excision of bone fragments.....	1						1				
Thigh, curettage.....	2				1		2	1			
Thigh, ligation of femoral artery and vein.....	1		1				2				
Thigh, plastic repair.....			1				1				
Toe, amputation.....			1				1				
Total operations (17,413).....	15,942	114	1,029	122	206	61	8,488	200	340	6	8,318

## DENTAL WORK.

TABLE 6.—*Dental operations for the calendar year 1919.*

Operation or treatment.	Number of cases.	Operation or treatment.	Number of cases.
Calculus removed (sets cleaned).....	35,543	Treated for—	
Extracted:		Fractured maxilla.....	93
Teeth.....	14,963	Gingivitis.....	5,470
Roots.....	31,146	Impacted teeth.....	443
Canals:		Necrosed maxilla.....	155
Treated.....	39,596	Pyorrhea.....	3,288
Filled.....	29,239	Other local inflammation.....	5,908
Pulps:		Fillings:	
Extirpated.....	12,330	Amalgam.....	83,968
Devitalised.....	8,562	Cement, temporary.....	6,877
Putrescent.....	9,717	Cement, permanent.....	21,822
Abscess:		Cement, synthetic.....	24,286
Lanced.....	2,847	Gutta-percha.....	32,979
Roots opened.....	1,825	Other than listed.....	2,847
Chronic and fistulous.....	1,656	Porcelain crowns.....	2,198
Restoration:		Conductive anaesthesia.....	690
Bridge.....	1,151	X-ray.....	2,028
Crown.....	1,569	Treatment other than listed.....	12,074
Inlay.....	567		
Plate.....	16	Total operations.....	400,977

## RECRUITING.

TABLE NO. 7.—*Recruiting statistics, Navy and Marine Corps, for calendar year 1919.*

Character.	Navy.			Marine Corps.			
	Original.	Reenlistment.	Re-serve.	Original.	Reenlistment.	Accepted applicants.	Re-serve.
Total applicants.....	170,870	15,419	511	43,443	3,356	7,128	33
Total enlisted.....	67,422	14,943	410	7,197	2,921	5,707	22
Examined by medical officer.....	146,520	15,353	497	22,055	3,235	7,100	26
Rejected by medical officer.....	67,408	340	53	12,079	301	481	1
Principal cause of rejection by medical officer:							
Abscess conditions (general).....		1					
Alcoholic.....	41	4		13			
Deformities.....	4,613	16	2	1,014	23	40	
Drug addict.....	6				1		
Ear—							
Defective hearing.....	1,178	13		340	8	19	
Other auditory diseases.....	852	14		153	3	43	
Eye—							
Color blind.....	2,012	4		433	17	4	
Defective refraction.....	11,500	55	4	1,810	35	14	1
Other visual diseases.....	627	2		224		2	
Febrile conditions.....	94		1				
Flat feet.....	5,519	26	1	1,447	62	100	
Gastro-intestinal tract, catarrhal conditions.....	7						
Genito-urinary, nonvenereal.....	530	3		79	3	25	
Genito-urinary, venereal.....	2,521	76	1	281	15	35	
Glands, enlarged.....	45	1		3			
Goiter, or tendency to.....	380	1		197	4	26	
Growths (cysts, tumors, etc.).....	14		1	2			
Heart affections.....	3,134	20	2	917	28	33	
Height, over.....	31			8			
Height, under.....	4,256	3	1	538	13	2	
Height and weight, under.....	199						
Hemorrhoids.....	491	2	1	134	5	3	
Hernia, or tendency to.....	1,767	8		429	15	10	
Intestinal parasites.....	3	1					
Mental disorders.....	585	10		118	5	22	
Nasal abnormalities.....	261			143		2	
Epilepsy.....	34	1	2	2		7	
Other nervous conditions.....	36	1		2	1	5	
Poor physique.....	1,354	3	12	303		24	
Pyorrhea.....	114			19			
Respiratory tract, catarrhal conditions.....	431			22	1	6	
Rheumatic conditions.....	31	2	1	3	1	5	
Skin diseases.....	2,062	14		342	8	2	
Speech, defective.....	183			26		3	
Tattooing, objectionable.....	9						
Teeth, defective.....	5,816	20	6	811	21	3	1
Tonsillar conditions.....	612	1		77			
Tuberculosis, or suspects.....	961	10		250	5	13	
Unightly scars or marks.....	7			1			
Varicocele or varicose veins.....	1,969	6	14	402	10	4	
Weight, over.....	22			4	1		
Weight, under.....	10,226	22	5	1,427	13	18	
All other causes.....	175			55	4	11	

*Principal causes of rejection of candidates for original enlistment.*

Causes of rejection.	Navy.	Marine Corps.	Causes of rejection.	Navy.	Marine Corps.
Defective refraction.....	11,504	1,812	Color blind.....	2,012	43
Weight, under.....	10,231	1,427	Skin diseases.....	2,062	342
Flat feet.....	5,530	1,447	Varicocele or varicose veins.....	1,963	402
Teeth defective.....	5,822	812	Hernia, or tendency to.....	1,767	429
Deformities.....	4,615	1,014	Poor physique.....	1,366	303
Height, under.....	4,257	538	Defective hearing.....	1,178	340
Heart affections.....	3,136	917	Tuberculosis or suspects.....	961	280
Genito-urinary, venereal.....	2,522	281			

## FINANCIAL.

TABLE NO. 8.—Statement of total cost of maintenance and average cost per diem for maintenance and subsistence of naval hospitals for the fiscal year 1920.

Hospital at—	Total cost of maintenance.	Subsistence.	Maintenance.	Subsistence, per diem.
		<i>Days.</i>		
Annapolis, Md.....	\$205,705.06	78,914	\$2.6067	\$1.3196
Canacao, P. I.....	85,402.86	48,784	1.750	.831
Cape May, N. J.....	7,252.17	7,818	.918	.722
Charleston, S. C.....	174,491.86	154,486	1.129	.747
Chelsea, Mass.....	294,719.65	197,716	1.44	.7963
Fort Lyon, Colo.....	758,694.86	329,762	2.3007	1.027
Great Lakes, Ill.....	354,466.44	269,054	1.6519	.8457
Gulfpport, Miss.....	41,864.65	27,159	1.5401	.5943
Hampton Roads, Va.....	220,940.72	156,649	1.4106	.904
Key West, Fla.....	68,292.37	34,870	1.95849	.86035
League Island, Pa.....	331,681.43	190,056	1.7451	1.0899
Mare Island, Calif.....	548,175.97	382,435	1.433	.8967
New London, Conn.....	14,800.94	13,585	1.084	.815
New Orleans, La.....	72,657.14	42,033	1.702	.973
Newport, R. I.....	227,168.21	155,496	1.46	.9133
New York, N. Y.....	586,370.78	342,707	1.7109	.963
Norfolk, Va.....	454,184.88	289,738	1.5709	1.058
Parris Island, S. C.....	77,685.12	55,338	1.43	.806
Pearl Harbor, Hawaii.....	31,145.57	19,428	1.6182	.6304
Pensacola, Fla.....	89,423.64	45,596	1.9697	1.2726
Philadelphia, Pa.....	131,731.35	79,191	1.66	.81
Portsmouth, N. H.....	104,995.28	54,674	1.91	.86
Puget Sound, Wash.....	134,449.29	78,529	1.713	.842
San Diego, Calif.....	192,604.98	113,453	1.60	.754
Washington, D. C.....	269,022.26	138,153	1.947	1.071

NOTE.—Hospitals placed out of commission before close of fiscal year 1920: Cape May, N. J., transferred to U. S. Public Health Service August 31, 1919; New London, Conn., September 30, 1919; Philadelphia, Pa., January 25, 1920.

TABLE NO. 9.—Statement of the activities of naval medical supply depots.

	Number of requisitions.	Value of requisitions filled.
New York, N. Y.....	3,433	\$1,632,535.70
Mare Island, Calif.....	691	257,884.08
Canacao, P. I.....	189	18,484.75

TABLE NO. 10.—Statement of the naval hospital fund.

The condition of the fund is as follows:	
Balance on hand July 1, 1919.....	\$1,602,085.73
Transferred to credit since July 1, 1919.....	1,387,335.32
Total.....	2,989,421.05
Expended since July 1, 1919.....	2,262,849.55
Balance on hand June 30, 1920.....	726,571.50





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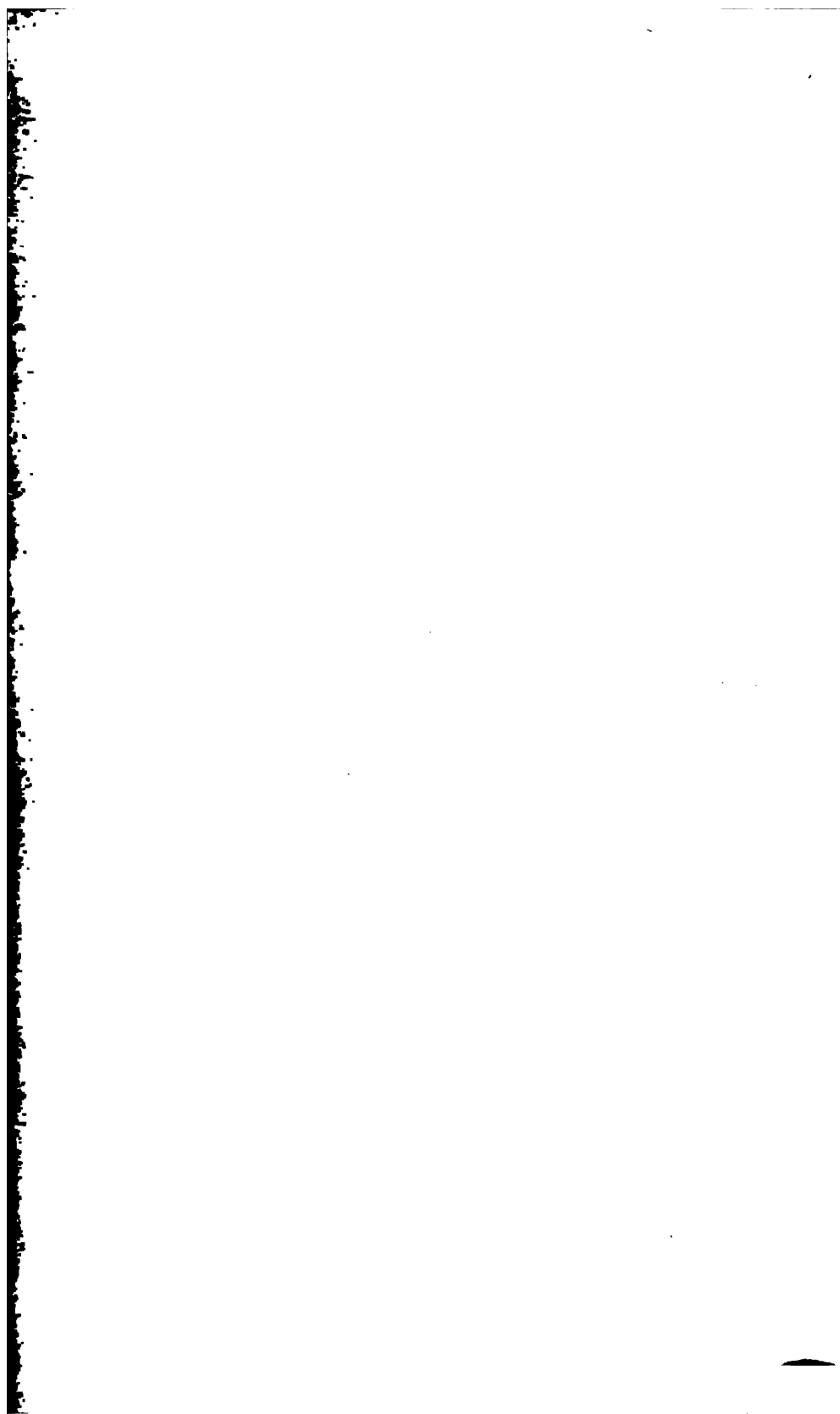
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NAVY DEPARTMENT  
BUREAU OF MEDICINE AND SURGERY

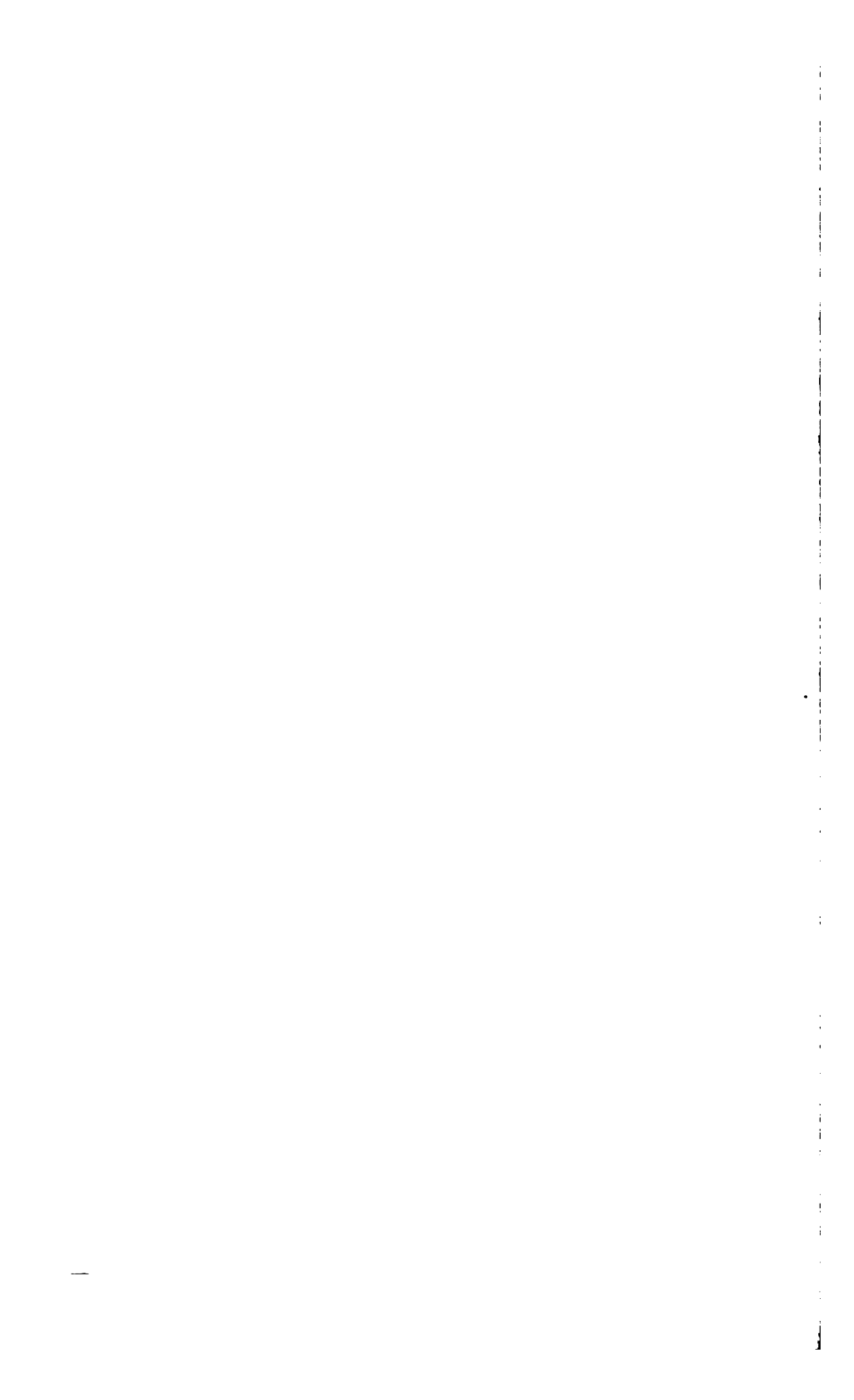
ANNUAL REPORT  
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CHIEF OF THE BUREAU OF MEDICINE AND SURGERY

TO THE  
SECRETARY OF THE NAVY

FOR THE FISCAL YEAR  
**1921**



WASHINGTON  
GOVERNMENT PRINTING OFFICE  
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*Hay Department*

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# REPORT OF THE SURGEON GENERAL, UNITED STATES NAVY.<sup>1 2</sup>

132612 (91)

DEPARTMENT OF THE NAVY,  
BUREAU OF MEDICINE AND SURGERY,  
*Washington, D. C., October 1, 1921.*

To: Secretary of the Navy.

Subject: Annual report for fiscal year 1921.

The report which follows covers health statistics up to the close of the calendar year 1920 and the operations of the Medical Department of the Navy up to the close of the fiscal year (June 30, 1921).

The Bureau of Medicine and Surgery has endeavored to continue the department's policy of retrenchment and has curtailed the expenditures of funds wherever possible; but owing to the bureau's close cooperation with the Veterans' Bureau in the care of war risk insurance patients, it has been necessary to maintain the various hospital establishments engaged in this work, almost in their war-time status, both as to personnel and maintenance.

The Medical Department has experienced difficulty in securing acquisitions to the commissioned personnel, as well as to the Nurse Corps and Hospital Corps. The opportunities which present themselves in civil life to recent graduates of medical, dental, and pharmaceutical colleges and of training schools for nurses are especially enticing at the present time.

The bureau, during the past year, has aimed to increase educational advantages available to those medical officers who have long displayed ability and earnestness in their profession as well as to those who have entered the Medical Corps of the Navy since the beginning of the war, and for this reason a close relationship between the bureau and the Naval Medical School has been established to carry out certain policies of education. The bureau has modified the curriculum at the school so as to strengthen the department of naval hygiene which in the future will lay more emphasis upon those branches of naval hygiene which have been an outgrowth of the War, such as the hygiene of gas defense, submarine warfare, and aviation, especially those factors which apply to flying in high altitudes.

The volume of work in the Division of Physical Requirements and Medical Records has increased conspicuously during the year, and this portion of the bureau's work has been greatly handicapped by a shortage in the clerical force.

Before proceeding to a detailed consideration of the features of special interest embraced in the year's activities I desire to bring to your attention the loyal and the high character of the service rendered by medical officers, dental officers, female nurses, hospital corpsmen, and civilian employees of the Medical Department of the Navy.

<sup>1</sup> All statistics cover the calendar year 1920.

<sup>2</sup> Owing to the requirement that economy be exercised in printing expense, the annual report of the Surgeon General appears in a much compressed form this year, and several captions have been omitted. Among these is the one relating to honors and distinctions conferred upon members of the Medical Department. It is intended, however, to publish this information in a forthcoming number of the Naval Medical Bulletin.

**PERSONNEL.**

**MEDICAL CORPS.**—Since the signing of the armistice there have been 268 resignations from medical officers in the regular service, and of this number 46 occurred during the current fiscal year. All of these, during this period, have been accepted and constitute what appears to be an irreparable loss. Sixteen candidates from civil life have been found qualified for commissions in the service, and of this number 1 has declined to accept his commission, 1 has since resigned, and 4 have not yet been tendered their commissions, so that the replacements from civil life since November 11, 1918, have been 12. It is apparent that service in the Medical Corps does not at present make a sufficient appeal to members of the medical profession who are eligible for appointment.

Since the passage of the naval appropriation act of June 4, 1920, 189 officers of temporary appointment and officers of the Medical Corps of the United States Naval Reserve Force were found qualified for commissions in the regular service, and of this number, 137 have accepted their commissions. At present there are outstanding 52 commissions, the officers concerned not having informed the department whether they will accept or decline appointments.

During the year 30 medical officers who had completed a cruise at sea were given a special course of instruction at the United States Naval Medical School and from this number 15 were selected for special study at civilian medical clinics, as follows: At the Mayo Foundation, 6 for special study in surgery; at Washington University, St. Louis, 5 for special study in diseases of the eye, ear, nose, and throat; and at the Massachusetts General Hospital, 4 for the study of internal medicine.

The commissioned medical personnel on duty July 1 comprised 768 medical officers of the Navy, 71 medical officers of temporary appointment, 47 medical officers of the Naval Reserve Force and 71 pharmacists who are serving under temporary appointment as lieutenants in the Medical Corps of the Navy, making a total of 935.

**DENTAL CORPS.**—The Dental Corps has been considerably augmented in numbers during the fiscal year by transfer to the regular establishment, under the provisions of the act of June 4, 1920, of officers from a reserve and temporary status. It is anticipated that about 20 vacancies will remain in the corps after all individuals from a military and civilian status, who have been found qualified, are commissioned.

Examinations for entrance have been held in Washington, D. C., at intervals of approximately three months, and at Mare Island, Calif., upon the application of candidates who for geographical reasons desired to appear before that board. Four candidates from among those examined for entrance have accepted commissions, and, during the same period, three resignations have been tendered and accepted.

No officers of the Dental Corps have been assigned to post-graduate courses for training, but it is hoped that in the future a limited number of such assignments may be made for officers whose service records warrant it.

A new system of dental charts has been adopted to meet the requirements of data for identification and war risk claims.



**NAVY NURSE CORPS.**—During the fiscal year, the decrease in the number of nurses which began with the signing of the armistice has continued despite the efforts which have been made to increase the number of nurses to 750. This number was the minimum total based on the minimum number requested by the commanding officers of the various hospitals. A review of the submitted number of appointments and discharges will demonstrate a greater turnover than is indicated by the difference in numbers as quoted for July 1, 1920, and July 1, 1921. The number of honorable discharges granted during the year indicates that the service fails to hold those who have conscientiously completed the period of duty to which they obligated themselves. The four-year period of enrollment for nurses in the United States Naval Reserve Force has not expired, but only 64 have remained on active duty or have been placed in an inactive status at their own request, out of the total enrollment of approximately 800 nurses. The acceptable form of appointment appears to be that of a reserve nurse whose obligation is to serve whenever needed, but who may honorably sever her connection with the service at the expiration of one year's period of duty.

During the year the following changes have occurred in the Nurse Corps, which numbered 535 July 1, 1920: Appointed—nurses, United States Navy, 42; reserve nurses, United States Navy, 44. Honorably discharged nurses, United States Navy, 34. Resignations—nurses, United States Navy, 31; reserve nurses, United States Navy, 74. Disenrollment—nurses, United States Naval Reserve Force, 12; reserve nurses, United States Navy, placed in inactive status at their own request, 8; nurses, United States Naval Reserve Force, placed in inactive status at their own request, 9; deaths, 2. During an emergency which developed when recruiting was speeded, an appeal was sent to nurses in inactive status which resulted in the return of 6 reserve nurses, United States Navy, and 13 nurses, United States Naval Reserve Force. As an offset to this number who returned to active duty, however, 10 reserve nurses, United States Navy, and 7 nurses, United States Naval Reserve Force, were discharged from inactive status at their own request. At the beginning of the present fiscal year, therefore, the corps numbers 470.

Two reasons are given for the difficulty in obtaining nurses and the greater difficulty in retaining them after they have become valuable to the service:

The first reason is the insufficient pay which these specially qualified nurses receive. This fact has been brought to the attention of the department in former reports but no remedy has been effected, and the expense of a large turnover continues with an increased disadvantage to the service in point of numbers and in retaining efficient personnel. Allowing certain advantages which pertain in the Government service, the indisputable fact remains that the grade of nurse needed in the Navy can receive a higher rate of pay in civilian hospitals and also in other branches of the Government service.

The second reason for the existing shortage is the almost negligible opportunity for promotion in the Nurse Corps, and this reason is more important than the first, viewed in connection with general efficiency and the morale of the corps. It must be accepted that efficient nurses are not content to continue in a service whose only definite recognition of their capabilities is the paltry increase in pay

of \$5 a month after each completed period of three years' service. Additional grades between nurse and chief nurse, and the consequent promotion with increased pay as the result of continued service and passing required examinations, would go far to maintain the interest of the nurses in the corps. The effect would be, also, a stimulus for increased effort in educational attainments and in maintaining the morale which is an essential factor in the life of a nurse.

In spite of the reduction in the corps, the number of nurses in the island possessions has not been reduced. The uniformly high grade of work of the nurses in these details which has been commended in previous reports has been sustained and received the approval of the medical officers attached to the stations.

It is worthy of note that an effort has been made in Guam to include primary instruction in sanitation, hygiene, and home care of the sick in the school curriculum. If this effort succeeds as planned by the naval medical officers, the department of education in Guam will be practicing the principles which have been recommended for incorporation in the schools for girls of the United States. Although unusual conditions in Samoa presented grave difficulties in continuing the training of the young native girls, the medical officers and nurses were assisted by the native pastors in retaining the class which was in training. Improved conditions in the island resulted in giving the graduation exercises of the second class of native nurses unusual significance. Too much emphasis can not be placed on the importance of having the native nurses in the Samoan districts under the supervision of a visiting Navy nurse, and equally important is the plan of having the native nurses return to the naval station at stated intervals for additional experience and review of their capabilities.

In the Virgin Islands the number of native women in training has increased, and the work of these native nurses after graduation, which is continued under the direct supervision of medical officers and Navy nurses, is far-reaching. The reports indicate improved conditions in the islands and the reduction of infant mortality. The conscientious supervision of the Navy nurses contributes largely to the success of the medical officers' plans for improvement.

Upon his return from a tour of inspection in Haiti the Secretary of the Navy advised the Surgeon General that a special effort should be made to assign nurses to the field hospital of the Marine Corps at Port au Prince, Haiti. Chief Nurse Fida Krook, whose name had been carried on the reserve list for a year, returned to active duty in response to an appeal for nurses to meet this great need. Miss Ellen M. Olson was reappointed in the Navy to meet this emergency; and a third nurse, Miss Clara Klinksick, who was stationed at the United States Naval Hospital, Washington, volunteered her services. Although few reports have reached the bureau, the spirit with which the nurses took up this detail has been most gratifying. It is believed that this work in Haiti will develop, and more nurses will be required to meet the expansion.

At the urgent request of the commanding officer of the U. S. S. *Mercy*, one chief nurse and four nurses were assigned to duty on that vessel. The original plans for the hospital ship, now named the U. S. S. *Relief*, included quarters for nurses, and when commissioned 1 chief nurse and 10 nurses were assigned to this detail. The reports

which have reached the bureau of the splendid work performed by nurses in these unusual details indicate that there need be no reservation in the department regarding the ability of Navy nurses to perform their professional work on board transports and hospital ships.

The special ability which has been demonstrated by a number of nurses in supervisory details and also in connection with the instruction of members of the Hospital Corps resulted in recommendations for promotion to the grade of chief nurse of 10 members of the Navy Nurse Corps. They have passed the necessary examinations and their names have been placed on the eligible list, but a reduction in the number of naval hospitals has retarded the promotion of many nurses who have previously been recommended. This unfortunate condition is another reason for emphasizing the necessity of additional grades in the Nurse Corps.

The number of dietitians assigned to the service has also decreased, and this is due chiefly to the indefinite status which these trained workers hold in the service. It is believed that greater cooperation and more practical improvement would result if the dietitians could become a definite part of the Navy Nurse Corps.

The result of war service is noted in the greater amount of sickness which has prevailed amongst the nurses during the last year. In accordance with the recommendations of boards of medical survey 13 members of the corps were separated from the service. The supreme sacrifice was paid by two members of the corps, one of whom, Miss Harriet K. Kavanaugh, met her death under distressing circumstances at the United States Naval Hospital, Annapolis. The death of the second nurse, Miss Theodosia Burr Burnett, was due to illness contracted in line of duty.

**HOSPITAL CORPS.**—On July 1, 1920, the Hospital Corps of the Navy was composed of 4,596 men of all ratings, most of whom were young recruits who first entered the service in 1919 for a two-year enlistment period. During the summer of 1920 an intensive recruiting campaign was inaugurated, and in December there was a total of 1,697 recruits in Hospital Corps training schools receiving the prescribed six months' course of instruction. At this time, owing to the shortage of the appropriation for "Pay of the Navy" men at training stations and recruit trade schools were released upon their own application. This opportunity to leave the service was taken advantage of by many of the hospital apprentices under instruction, and as a result the ranks of the Hospital Corps were quite seriously depleted.

The recent resumption of first enlistments for a four-year period only will stabilize the Hospital Corps, as it takes approximately seven months to train a recruit for the duties of a hospital apprentice, and it is very advisable to continue the practical training at a shore hospital. It was found that in many cases the two-year enlistment period expired before or shortly after the men could be assigned to a ship.

Due to the fact that additional hospital corpsmen are needed, the Navy Department has assigned for the hospitalization of war risk patients beds in naval hospitals up to the number of 3,000. Authority has been granted and the sum of \$410,760 has been transferred from the Bureau of War Risk Insurance funds to the appropriation "Pay of

the Navy" to pay 500 additional hospital corpsmen during the fiscal year 1922; these men to be utilized in hospitals caring for war risk cases and to be of the Navy but in excess of the personnel provided for by the naval appropriation act of July, 1921.

Discharges for all causes during the year totaled 4,809; less than 9 per cent of these men have reenlisted. This most unusual turnover in personnel has necessitated frequent transfers between ships and shore stations. At the present time about 30 per cent of the Hospital Corps are serving on board ships, 35 per cent in naval hospitals, and the remainder are undergoing training at Hospital Corps training schools and doing duty ashore on distant stations and within the borders of the United States.

*Hospital Corps Training Schools.*—In furtherance of the policy to conduct the training of Hospital Corps recruits in close cooperation with a large naval hospital, the school at Great Lakes, Ill., was moved in October, 1920, to Camp Ross, which is within the limits of the Great Lakes Naval Hospital reservation, and in November, 1920, the Pharmacist's Mates School at Hampton Roads, Va., was transferred to the Norfolk Naval Hospital reservation. Owing to urgent need of trained personnel, the advanced course of instruction for pharmacist's mates was discontinued temporarily in the fall of 1920 and the school devoted solely to the intensive training and instruction of recruits, the full six months' course of instruction being resumed in January, 1921. The Hospital Corps training school at Newport, R. I., was closed in April, 1921, because of deterioration of the buildings and lack of funds for maintenance.

On July 1, 1920, there were 79 chief pharmacists and pharmacists with the temporary rank of lieutenant, Medical Corps. During the year 4 who held medical degrees have qualified and transferred to the regular Medical Corps of the Navy, 3 have retired, and 1 resigned, leaving at the end of the year 71 officers of this class. It is hoped that some means will be provided whereby this deserving group of officers will receive at least a part of the benefits of the act of June 4, 1920.

During the year, 42 chief pharmacists and 8 pharmacists of the temporary establishment and naval reserve force have been found qualified and appointed to the permanent Navy, making a total of 42 chief pharmacists and 14 pharmacists now in the service.

The Hospital Corps Quarterly (Supplement to the United States Naval Medical Bulletin) is the only publication in America devoted solely to the training and education of male attendants upon the sick, and has been of inestimable value to the service as a means of educating, communicating with, and maintaining the contentment of the Hospital Corps.

#### **CARE OF THE DEAD INTERRED ABROAD DURING THE WORLD WAR.**

The active disinterment work of the Naval and Marine Corps Graves Registration Service in Europe was brought to a close on March 10, 1921, when the last of the bodies of Navy and Marine Corps dead, listed for return to the United States from the Zone of the Interior of France, were placed aboard the U. S. S. *Ramapo*, at Brest, France. The operations of this service which was a continuation of the Navy Exhumation Unit extended over a period of

one year, during which time the remains of 492 officers and enlisted men of the Navy and Marine Corps were removed from some 70 different cemeteries scattered along the seaboard and over the entire interior of France. Bodies were identified, reincased in Navy standard shipping caskets, and safely forwarded to this country. Many other bodies not to be returned were removed from the outlying cemeteries and reburied in the American Military Cemetery at Brest to await later removal to one of the permanent American cemeteries.

With the few exceptions hereafter noted, all actual disinterments were made by enlisted men of the Navy, under the close supervision of medical officers. In no case was there cause for doubt, either as to identity or of the careful and respectful handling of the bodies exhumed. The bodies were first assembled at the United States Naval Morgue at Brest and then forwarded by naval vessel to Brooklyn, N. Y., where they were transferred to the naval hospital for reforwarding, after careful inspection of incasements, to their next of kin or to national cemeteries.

In remote places, or where there were but few bodies to be removed, contracts were made with reputable undertakers, and the actual work was performed by them under the supervision of a naval medical officer. The procedure developed by the Naval and Marine Corps Graves Registration Service for disinterments was in thorough accord with instructions given by the Secretary of the Navy and this bureau, that the greatest care, consideration, and respect be shown in handling the dead and to safeguard the health of those engaged in the operations.

By arrangement with the War Department, all Navy and Marine Corps dead in the "Zone of the Armies" in France, in Belgium, Luxembourg, and Germany are being cared for by the Army Graves Registration Service, either for return to this country or reinterment in the four permanent American cemeteries at Bony and Belleau, Department of the Aisne; Suresnes, near Paris; and Romagne, Department of the Meuse. The cemetery at Bony (to be known as "Flanders Field") was added to the former list of permanent American cemeteries to provide a memorial for those who fell in the irresistible Aisne offensive.

The Naval and Marine Corps Graves Registration Service, however, has been continued in operation, with headquarters at Paris, with a complement of 2 medical officers and approximately 25 enlisted men. Authority for this continuation was granted by the Secretary of the Navy on March 23, 1921, upon recommendation of this bureau, in order that the Navy Department might keep in close touch with the remaining work. There are yet to be removed to this country the bodies of 15 Navy and 1,228 Marine Corps dead, while permanent graves must be provided for the remains of 105 of the Navy and 850 of the Marine Corps, who, by request of their nearest of kin, are to rest in the land where they made their supreme sacrifice.

Up to the present time, of those who gave their lives while on duty abroad, from April 6, 1917, to the close of hostilities and the withdrawal of our forces, the remains of 801 of the Navy and 729 of the Marine Corps have been returned to this country in fulfillment of the pledge given by the Navy Department to their relatives.

### MEDICAL AND SURGICAL SUPPLIES.

The capacity of supply depots has been greatly overtaxed due to accumulated war stocks. To accommodate surplus stores it has been necessary to utilize vacant space at various naval stations. As soon as distribution of these excess stores to the fleet and to naval stations and hospitals is effected, it is intended to bring all storage facilities, as soon as possible, to a prewar basis, but should naval activity increase in the Pacific, the storage facilities on the Pacific coast will require augmenting. The depot at Mare Island now serves the Pacific Fleet, the Pacific coast, and the stations at Samoa, the Hawaiian Islands, and Guam.

During the year, a quantity of medical stores in excess of the Navy's requirements were transferred to the Public Health Service, the Coast Guard, and the civil government of the Virgin Islands of the United States.

The supply table of the Medical Department of the Navy is in process of revision. Many important additions have been made to both the medical and dental sections, and many items no longer considered essential have been dropped. The allowance tables have also been revised.

### INSPECTIONS OF HOSPITALS AND STATIONS.

The great value and necessity of inspections of Medical Department activities have been fully demonstrated since their systematic inauguration over two years ago.

In addition to the usual inspection of these activities within the continental limits of the United States, the following have been made, viz, Guantanamo Bay, Cuba, Haiti (brigade and regiments, sanitary organization and the Gendarmerie), Santo Domingo (brigade and regiments, sanitary organization, and the Guardia Nacional Dominicana), the Virgin Islands, Honolulu, Guam, and some places in the Philippine Islands, notably Canacao and Cavite.

The time of the inspecting officers during the fiscal year has been devoted largely to studying results of previous inspections, arranging records and following up former recommendations.

The bureau has now in process of preparation a revision of the prescribed forms used in the inspection of hospitals, Hospital Corps training schools, and other Medical Department activities, which will indicate not only the organization of hospitals and schools but also show the bureau's policy in many important instances in connection with their administration.

During the past year, Rear Admiral George H. Barber, Medical Corps, United States Navy, has been detailed as medical inspecting officer for the Asiatic Station; Rear Admiral A. M. D. McCormick, Medical Corps, United States Navy, for the Pacific coast; and Rear Admiral R. M. Kennedy for the Atlantic coast.

### INSTRUCTION AT THE UNITED STATES NAVAL MEDICAL SCHOOL. WASHINGTON, D. C.

The Navy Medical School completed its nineteenth year on June 30, 1921, and the following report shows a continuance of the gratifying results which have rewarded the work of the institution ever since its establishment in 1902. The history of its operations has been char-

acterized by splendid improvement in every feature of equipment and instruction and its value to the individual, the service, and the profession are so well known and have been so amply considered in the previous annual reports of the Surgeon General that further comment along this line is considered unnecessary.

The course of instruction for the session of 1920-21 began with a special class October 1, 1920, and extended over a period of 12 weeks. This class was a continuation of the special classes started in September, 1919, for the purpose of offering an opportunity to medical officers in the service to specialize. The necessity of such courses, the manner in which conducted, and the method of selecting the men were described in detail in the Annual Report of the Surgeon General, 1920. Since the institution of these special courses there have been four classes, with a total of 83 medical officers instructed, of which 39 were selected for four months' postgraduate instruction.

*Table showing classes and number selected in each branch.*

Class.	Number in class.	Internal medicine.	Surgery.	Eye, ear, nose, and throat.	Genito-urinary.	Selected.
Sept. 29 to Dec. 22, 1919.....	28	4	2	3	1	10
Feb. 6 to Apr. 24, 1920.....	24	4	5	4	.....	13
May 14 to July 27, 1920.....	15	2	3	4	.....	9
Oct. 1 to Dec. 24, 1920.....	16	3	3	2	.....	7
Total.....	83	12	13	13	1	39

The second class, comprising 24 medical officers, began January 17, 1921, and extended over a period of four months and marked a return to the routine course given prior to the war for medical officers entering the regular establishment.

The scope of the work covered by the faculty in these courses includes surgery, tropical and preventive medicine, medical diagnosis, cardiovascular diseases, naval hygiene and sanitation, field sanitation and hygiene, epidemiology, ophthalmology, laryngology, otology, genito-urinary diseases, psychiatry, neurology, medical department duties, gas defense, pathology including neuropathology and autopsy work, medical zoology, bacteriology, serology, hematology, endocrinology, chemistry and drills.

Four permanent examining boards (two boards of medical examiners and two naval examining boards) are maintained at the school, and 126 candidates were examined physically and 141 professionally during the past year. In addition to this many special physical examinations were conducted.

The laboratories of the Naval Medical School continue to serve the useful purpose which has been frequently outlined in previous reports and aside from the rôle they play in the course of instruction have become indispensable to the work of the Medical Department as a whole.

Among the important changes for increasing the facilities for laboratory work and instruction were the equipment of a laboratory consulting room, the equipment of a special room for estimation of basal metabolism, the installation of frozen section apparatus for pathological work, the equipment of a room for photomicrographic work and the equipment of two small laboratories for special work.

## NAVAL DISPENSARY, WASHINGTON, D. C.

There has been a slight decrease in the number of patients treated at the United States Naval Dispensary as compared with 1920, but the appended summary shows that the volume of work accomplished has been considerable.

*Summary.*

Patients treated in the dispensary.....	26,867
Outside calls paid by medical officers.....	7,390
Patients transferred to naval hospital.....	225
Patients invalidated from service.....	4
Ambulance calls.....	150
Requisitions prepared.....	33
Public bills prepared.....	160
Prescriptions filled.....	35,501
Officers examined (annual).....	550
Candidates for Naval Academy examined.....	160
Patients treated in eye, ear, nose, and throat clinic.....	16,182
Patients treated in dental section.....	6,752
Total number of X-ray pictures taken at the naval hospital.....	1,250
Total number of patients treated.....	49,801

## WELFARE ACTIVITIES.

It was stated in the last annual report that it is recognized that Government provision should be eventually obtained in welfare effort, but in order not to suddenly terminate all the good that has been done, it was realized that there must of necessity be a gradual process of reorganization and elimination. Due to economic reasons there have not been sufficient governmental funds available to provide all the seemingly necessary activities to maintain a high standard of morale amongst patients in the hospitals. It therefore seems desirable to continue to receive civilian assistance. The American Red Cross has been looked to as the organization through whom such assistance might come.

Supplemental welfare service provided by the Red Cross has been continued, for that organization desires to maintain its association with the Navy in behalf of the sick, injured, and convalescent. This supplemental recreational and amusement service is in addition to Red Cross home service, which is carried on for the benefit of the entire naval service. Patients offer a fertile soil for good and evil influences. Physicians and nurses must consider the amusement and contentment of the patient in establishing health. Treatment to be successful must embrace a rehabilitation in mind as well as in body.

There has been little change during the present year in the method of conducting welfare activities in naval hospitals. Decentralization has been followed so far as consistent. The Bureau of Navigation, Sixth Division, has allotted funds to each hospital for recreational amusement, and entertainment purposes for the enlisted men. Funds allotted are expended in the discretion of the commanding officer. Ships' stores are established and operated at those hospitals where the supply department personnel is adequate. Funds derived from ships' stores profit supplement those allotted by the Bureau of Navigation. Combined efforts should be effected so that ships' stores are just as active as possible. The need for economy does not touch, except very indirectly, the operation of these stores and in



order that sufficient funds may be available for welfare activity, it is expedient that they be actively maintained. The utilization of them should be enjoined as the purchasers receive benefit of the percentage of profit allowed. Naval personnel will more willingly patronize the ships' stores than those of civilian merchants, but the stocks carried must be varied and attractive and the administration of these stores humanizingly appealing. Without a change in public attitude it seems obvious that in the not distant future the profits derived from ships' stores will constitute the sole source of welfare funds.

Welfare work is coordinated in the bureau liaison maintained with the Bureau of Navigation and the American Red Cross by one officer whose duty it is to provide for welfare activities in hospitals.

The few librarian specialists employed by the Sixth Division for duty at certain of the larger hospitals have been continued during the past year. The work of these librarians has been excellent. Library service is one of the most valued forms of specialized welfare activities. Where there are no single hospital assignments the hospital libraries are indirectly supervised by station or district librarians. New volumes are constantly being added to the libraries by the Sixth Division. The number of volumes read by personnel attached to the hospitals is relatively the same as stated in the previous report, averaging from two to four per month per capita.

There has been an extension of so-called "occupational therapy" or "occupational recreation" during the past year by the American Red Cross to a few other of our hospitals. This activity is filling a great need, especially at our tuberculosis hospital at Fort Lyon, Colo. Materials are bought by the Red Cross for the articles that are to be made, the individual patient paying for the materials at actual cost, and when made the article is disposed of by him, either as a gift or through sale. The purpose is to stimulate interest, initiative, and activity in the patient's mind, to assist in restoring physical function, and to amuse him.

Wherever occupational recreation has been properly conducted, very enthusiastic reports are received of the results obtained. Both bed and up-and-about patients enjoy this form of diversion. The long hours in bed are less irksome when the patient in bed has something to occupy his mind, and particularly when he can measure his accomplishments. Like all Red Cross activities, this work is under the direction of the commanding officer; patients in bed are limited in what they can accomplish, but as soon as they are in a wheel chair or walking about they have access to a room or shop set aside as a workroom for this purpose. Among various articles made are baskets, toys, mats, pillow covers, shawls, belts, and bedding; they also do painting, framing, wood carving, etc., the patient being able to select the object he desires to make among those for which materials are provided. It has been felt that this is one of the means of reducing the number of sick days at the particular hospitals where it has been applied.

Much interest has been obtained in convalescent houses and recreation centers. Indoor amusement and recreational features are provided for in these spaces. The Red Cross finished construction of and turned over during the year, completely furnished and equipped,

a convalescent house at Puget Sound. This project had been under consideration and construction a long time. It has met a very definite need due to the inadequate provision of indoor entertainment facilities which are particularly essential in a location like Bremerton for climatic reasons. The commanding officer of this hospital has expressed himself in most appreciative terms relative to this building.

No hospitals or hospital ships are overlooked in the provision of athletic, recreational, and entertainment material. The U. S. S. *Relief* was given special consideration in the matter of recreational entertainment and amusement provision prior to being placed in commission.

#### AMERICAN RED CROSS.

The American Red Cross has continued during the year certain of the activities conducted by it during the war for the benefit of the naval service. These activities have been confined for the most part to the sick, injured, and convalescent classes, supplemental to Government provision, but, in addition, the Red Cross home service has continued its work though not as extensively as during the year 1919. In addition to home service for the benefit of the naval service, the Red Cross also acts as a supplemental agency for providing entertainment, amusement, and recreational features at naval hospitals; in distributing minor supplies for the comfort and welfare of the patients and emergency supplies when required. Red Cross field directors have continued to be assigned at the larger naval stations and hospitals, but as activities have decreased there has been a curtailment of the local Red Cross representation. It has been felt that the service to be effective must have continuity and be accessible to the majority of the naval personnel. There have been Red Cross representatives in Haiti and Santo Domingo with the marine forces. The Red Cross has adopted a liberal policy in regard to the personnel on active field duty in these countries, and, from reports received, it is evident that the service rendered by these field directors has had beneficial results in these commands. The Red Cross hospital at Seybo, Dominican Republic, is still being operated and has, by its humanitarian service, very materially assisted in tranquilizing the natives in that turbulent section of the Republic. In addition to the physician administering this institution, the Red Cross has now assigned a trained nurse, and other nurses have been sent to Haiti to serve with the local sanitary government. These nurses also act as instructors in the Native Training School for Nurses. The \$10,000 appropriated by the American Red Cross for the encouragement of the training of native nurses in Haiti has not been entirely expended, and it is intended to apply the balance of this money to founding, if possible, a home for native nurses.

In the Virgin Islands the Red Cross has continued to provide funds for the maintenance of certain civil hospitals which are operated by naval medical officers. These contributions have made it possible to provide adequate hospital facilities in the islands. In addition to this pecuniary assistance the Red Cross has conducted the library and school for nurses. The Junior Red Cross, Potomac Division, has appropriated \$10,000 for the benefit of the children of the Virgin Islands.

**THE UNITED STATES INTERDEPARTMENTAL SOCIAL HYGIENE BOARD.**

This board is composed of the Secretary of War, the Secretary of the Navy, the Secretary of the Treasury, and a medical officer from the Army, one from the Navy, and one from the United States Public Health Service. Its activities cover the following: Promotion of scientific research, development of educational methods and programs, and law enforcement work. It is also charged by Congress with the disbursement of all Federal moneys appropriated to aid States in the prevention and control of venereal diseases. This official agency of the United States Government was created by Chapter XV, act of Congress, July 9, 1918, to coordinate Federal activities for the control of venereal diseases and to operate programs to secure enforcement of laws for the protection of the military and naval forces of the United States.

The programs include (a) investigation of social conditions which make for the spread of venereal diseases; search for foci of infection, and assistance to secure proper care or detention of infected civilian individuals; (b) follow-up work with individuals who are carriers of venereal disease to prevent them from becoming infected again, or from infecting other persons; (c) investigation of facilities for the care and maintenance of individuals infected with venereal disease who may be sources of infection of military or naval personnel; and (d) presentation of the results of investigation to regularly constituted law-enforcing agencies. The protective social measures program of the board has been developed to carry out the intent of the law, and it contemplates the repression and eradication of prostitution wherever possible. The board maintains cooperative relationship with all official and unofficial agencies which are factors in this program.

**DIVISION OF PHYSICAL REQUIREMENTS AND MEDICAL RECORDS.**

The clerical force has gradually diminished during the past year. The places of those who resigned during the year were left unfilled and seven vacancies were created in that manner.

The clerical work of the division has not decreased to any appreciable extent, and it has only been by the increased efficiency of the clerical force that this division has been kept from being greatly behind in its work.

The demand for medical records from the Bureau of War Risk Insurance has increased to such an extent that it has not been possible to keep abreast of the demand, owing to lack of clerical force. It has been necessary to request clerical assistance from the Bureau of War Risk Insurance, and two typists were detailed from that bureau for this purpose.

*Section on policy and commissioned personnel.*—While the examination of the records of officers of the United States Naval Reserve Force for confirmation has diminished, there is still much work to do in this connection, as the Bureau of Navigation has requested this bureau to furnish an abstract of the medical record of each officer who applies for transfer, confirmation, or reenrollment.

The number of officers of the temporary and reserve force who are eligible for retirement under the act of June 4, 1920, has increased

during the past year, and it has been a difficult problem in some of the cases to establish that the disease for which they were seeking retirement was contracted while in the naval service. In some of the cases it has been necessary to refer the records to the retiring board two or three times, due to the fact that the interested parties had new evidence to present to the retiring board.

It is believed that the number of these cases will not diminish during the remainder of this calendar year.

Other than the above there has been very little change from the previous annual report.

*Section on medical records.*—The volume of work in this section has increased approximately 35 per cent during the year.

This is apparently due to the increased enlistments; increase in the number of calls from the Bureau of War Risk Insurance, almost 100 per cent over last year; increase in number of requests for information from individuals relative to claims for compensation; information for use in collecting sick benefits from civil societies; death claims and information for use in civil suits. There has recently been received from the Bureau of Navigation approximately 30 requests per day for medical history for use of medical examiners in the cases of officers of the reserve force for confirmation in grade, transfer to different classes within the reserve force and for reenrollment.

There are approximately 800,000 jackets in file, and they are increasing at the rate of about 100,000 each year.

There appears to be no immediate prospect of diminution of the volume of work in this section during the coming year.

*Casualties and deaths.*—The reports of casualties and deaths are up to date. Those pertaining to the Marine Corps have been checked against the Marine Corps files and are believed to be fairly accurate. No attempt has been made to verify the accuracy of the Navy casualty reports during the World War.

Despite the increasing volume of work in this section, the number of employees has steadily decreased. The loss in this section being a total of 33 per cent plus. This leaves the clerical force inadequate to care for the daily routine.

It is with the deepest sorrow and regret that I have to record the loss to the service of the following-named medical and dental officers who have died since the Surgeon General's last report, or whose names were not contained in previous lists. Some of these officers served their country for many years with faithful devotion to duty. The remainder were just beginning their careers in the service and for this reason their loss is sincerely felt.

Lieut. Charles P. Henry, Medical Corps, United States Navy, February 26, 1920.

Lieut. Herbert A. Sturdevant, Dental Corps, United States Navy, February 26, 1920.

Lieut. Frederick H. Ramsey, Dental Corps, United States Navy, May 21, 1920.

Lieut. Edward G. Archibald, Medical Corps, United States Navy, November 25, 1920.

Lieut. Henry Stewart (retired), Medical Corps, United States Navy, October 4, 1920.

Commander Harry F. Hull, Medical Corps, United States Navy, October 30, 1920.

Lieut. John C. Taylor, Medical Corps, United States Navy, January 30, 1921.

Lieut. Joe R. Shiley, Medical Corps, United States Navy, February 16, 1921.

Lieut. Commander Robert A. Torrance, Medical Corps, United States Navy, February 24, 1921.

Rear Admiral David Kindleberger (retired), Medical Corps, United States Navy, March 25, 1921.

Capt. Frank Anderson (retired), Medical Corps, United States Navy, March 31, 1921.

Commander Franklin Rogers (retired), Medical Corps, United States Navy, May 28, 1921.

*Section on physical requirements of enlisted personnel.*—One assistant has charge of this section, which includes the consideration of:

1. Medical surveys of all enlisted personnel.
2. Reports of rejection for enlistment, telegraphic requests for waivers, and correspondence relative to physical requirements and waivers of physical defects.
3. Physical requirements of the Nurse Corps.
4. Data as to disability for the Federal Board for Vocational Education in adjudicating claims for vocational training.
5. Reports of death.

Medical surveys have been received and acted on at an average rate of 25 per day. It is noted that otitis media, chronic, is one of the disabilities which most frequently necessitated the discharge by medical survey of recruits at training stations, or within one year after enlistment. It is thought that these cases should be excluded at the recruiting station by a careful otoscopic examination by the medical officer in each case before an applicant is passed for enlistment, and this examination, with the assurance that an accepted applicant has a normal intact eardrum, will be specifically required in the new Manual for the Medical Department. Mental disorders, especially "constitutional inferiority" and "dementia præcox," also cause many recruits to be surveyed shortly after enlistment. Although it is difficult to recognize these cases when no active psychosis exists during the brief period an applicant for enlistment is under observation in a recruiting office, it is thought that many of them would be excluded from the service if their previous history were known to the recruiting officers. It is recommended that recruiting officers obtain when possible the previous history or a recommendation as to desirability of all applicants from the relatives of the applicants, former employers, neighbors, etc.

From the beginning of the fiscal year to December 31, 1920, rejection reports for enlistment in the Navy and Marine Corps, together with telegraphic requests for waiver, averaged from 40 to 50 a day. Original enlistments were stopped from the latter part of December, 1920, until the middle of March, 1921, so that this part of the work fell to a minimum during this period. Since the resumption of limited recruiting in March, reports of rejection and telegraphic requests for waivers have averaged about 15 per day. On May 4, 1921, the Bureau of Navigation, upon recommendation of this Bureau, issued to the recruiting service a table showing the minimum weight at which a minor could be accepted at a given height and age, as previously only a minimum weight for age was given in the case of minors.

The work of giving a rating of the degree of disability for vocation in civil life on medical surveys and Form 226 for the Federal Board for Vocational Education continues at about the same rate.

Reports of physical examinations for the Navy Nurse Corps are submitted for review and recommendation as to whether the applicant should be accepted or rejected, and as it has been rather difficult

to obtain nurses who meet the Navy requirements, the bureau has waived all minor physical defects.

#### **DIVISION OF PREVENTIVE MEDICINE.**

The activities of this division may be summarized as follows:

1. Collection and compilation of morbidity and mortality statistics and preparation of charts and other graphic records from week to week as an aid in following the incidence and prevalence of disease in the Navy.

2. Epidemiological studies and the supervision of the prevention and control of communicable disease.

3. Study of sanitary conditions and recommendations regarding improvements where necessary, with special reference to housing, toilet and bathing facilities, drainage, purity of the water supply, disposal of sewage, disposal of refuse, extermination of insects and vermin, food and conditions under which food is received, prepared, and served, ventilation and ship hygiene, industrial hygiene, personal hygiene, and clothing.

4. Study of health conditions in civilian communities constituting the environment of naval stations and ports visited by naval vessels; recommendations in matters requiring cooperation with Federal, State, and local health officials.

5. Dissemination of information relating to preventive medicine for the use of medical officers of the Navy by means of the monthly preventive medicine bulletin.

During the year the Bureau of Medicine and Surgery has been kept informed of sanitary conditions throughout the service by means of yearly sanitary reports from ships, stations, and hospitals, monthly sanitary reports from shore establishments, special sanitary reports, reports of epidemics, and special forms which are forwarded to the bureau at regularly stated intervals. Any reports which indicated unsatisfactory health conditions or continued recommendations looking toward improvement of sanitation, were immediately acted upon by the Bureau of Medicine and Surgery or referred with appropriate recommendations to the bureau having cognizance of such specific matters.

Although there were 67,832 original enlistments in the Navy and Marine Corps during the year, of which at least 75 per cent were inducted into the service during the last five months of the year, there was no overcrowding at any of the training stations.

The new training station now being built at San Diego, Calif., is a model in regard to sanitary and hygienic requirements. The Bureau of Medicine and Surgery has frequently consulted with the Bureau of Yards and Docks on matters relative to its hygienic construction.

During the past year an adequate and pure water supply has been obtained at the marine barracks, Parris Island, S. C., and the water supply at Quantico, Va., has been improved to such an extent that it is now entirely satisfactory. The navy yard, Philadelphia, Pa., had trouble from time to time with cross connections between the drinking water supply and the flushing supply. By cooperating with the Bureau of Yards and Docks all such cross connections have been eliminated. The question of providing the naval ammunition depot, Iona Island, N. Y., and the naval air station, Lakehurst, N. J., with

adequate water supplies has also been taken up with the Bureau of Yards and Docks.

The disposal of sewage has been satisfactory at most stations. The navy mine depot, Yorktown, and the naval proving ground, lower station, Dahlgren, Va., are being fitted out with adequate sewage disposal facilities as rapidly as possible.

At permanent shore stations, both in the United States and outside the continental limits of the United States, measures for the control of mosquito breeding have been put into effect as rapidly as the limited funds available would permit. Such procedures as ditching, filling, and oiling are expensive, but the results from such operations are well worth the expense. The naval submarine base and the naval air station, Coco Solo, Panama Canal Zone, have made requests for large sums of money to properly control mosquito breeding in that locality, working in conjunction with the Army and the Canal Zone Government. The Bureau of Medicine and Surgery has taken up this matter with the Bureau of Yards and Docks, and such work as the last yearly appropriation permitted has been carried out. Malaria caused a very high morbidity rate in Haiti and Santo Domingo. It is impossible for the marines stationed in these two countries to limit the spread of malaria, with the disease so prevalent among the natives and an absence of any active mosquito-control work in the two countries. The naval medical officer acting as sanitary engineer of Haiti and the naval medical officer acting on the staff of the Military Governor of Santo Domingo report that it is difficult to obtain the cooperation of the people of these countries in any hygienic projects.

In a report on the Hookworm and General Survey of the Republic of Santo Domingo, by John B. Grant, M. D., of the International Health Board, New York City, it was stated that—

It may be noted here that the statement that Santo Domingo has no present, only a past and future, is probably more applicable to this department [department of health] than to any other branch of the Government. For the progress that has been made in public-health activities, credit is due to the executive officer of the military government, a line officer realizing the importance of this special line of work and displaying considerable technical knowledge of it, and to the chief sanitary officer, because the existing organization is altogether a one-man product.

The sanitary, public health, and beneficence work of the Republic is in charge of a department of state of sanitation and beneficence, directed by a secretary of state for this department. As the secretary is detailed from the Medical Corps of the United States Navy, he receives the pay of that service. There is no added remuneration for extra service, as might seem appropriate. The powers of the secretary are extensive, but definitely outlined by the executive order creating the department. In the hands of an incompetent man they might be too arbitrary, but during the formative period of the new organization they have materially helped in the rapid establishment of a successful and efficient department.

The sanitary and hygienic conditions afloat have been, in general, very satisfactory. The annual sanitary reports from ships equipped with the thermoventilating system condemn this method of heating. Practically all reports contain the statement that when such combined systems were in use men suffered more from nasopharyngeal complaints than aboard ships where the dual system was used. The Bureau of Medicine and Surgery is at present studying this problem in conjunction with the Bureau of Construction and Repair, and it is believed that in time a satisfactory heating and ventilating system may be found.

The problem of properly handling mess gear aboard ship has frequently been brought to the attention of medical officers and through them to their commanding officers by means of timely articles in Notes on Preventive Medicine for Medical Officers, U. S. Navy, on this subject. Most ships are adequately supplied with proper types of dishwashing machines for the sterilization of mess gear; where such was not the case the Bureau of Construction and Repair has always acted favorably upon any recommendation regarding this matter.

As a result of an endeavor of the Navy to fill its quota during the year, many men of inferior physique as well as poor mentality were accepted. It cannot be too strongly recommended that only physically fit and mentally capable men should be accepted for enlistment. By means of rigid physical and psychiatric examination of the men arriving at training stations the grossly physically and mentally deficient have been eliminated before being transferred to ships or other shore stations. Nevertheless, many complaints have been received relative to the type of men sent to the ships. The mentally defective, such as the moron, will never make a good sailorman. He will always be a misfit and will sooner or later be given a bad-conduct discharge, undesirable discharge, or sent to a naval prison. He is a constant source of ridicule to his shipmates and never performs his duty satisfactorily. The elimination of such men from the Navy as soon as possible or, better still, not to accept them at all, should be encouraged instead of discouraged.

An epidemic of smallpox occurred among the native population of Haiti in the fall of 1920 and continued through the winter of 1921. The naval medical officers on duty with the civil government and the United States Marines have vaccinated practically the entire population of the island, and the disease is now under control.

Practically all naval stations, particularly Key West, New Orleans, Charleston, San Diego, San Francisco, and Norfolk, have been ratproofed during the past year. The destruction of rodents is still being carried on at all stations.

Among other problems considered by this division has been ventilation of submarines, various hygienic problems connected with the air force, and advising the various bureaus on matters such as are commonly met with in industrial hygiene.

*Changes in personnel.*—Lieut. C. D. Sinkinson, Medical Corps, United States Naval Reserve Force, was detached from duty in the Division of Preventive Medicine in August, 1920, and was relieved by Lieut. Commander R. F. Jones, Medical Corps, United States Navy. In April, 1921, Lieut. Commander J. R. Phelps, Medical Corps, United States Navy, was detached from the bureau as Chief of the Division of Preventive Medicine and was relieved by Lieut. Commander R. F. Jones, Medical Corps, United States Navy.

#### DIVISION OF PUBLICATIONS.

The bureau's quarterly publication, the United States Naval Medical Bulletin, has entered upon its fifteenth year of uninterrupted issue. This periodical supplies officers of the Medical and Dental Corps with timely information in regard to medical and sanitary features of the naval service and with reports on advances in the



medical sciences. It serves as a storehouse for statistics which may be of value to students of medicine and to writers, and as a permanent record of original research on the part of medical officers of the Navy and of unusual and interesting cases observed by them.

The steady demand for this publication from medical libraries and colleges has made it necessary to increase the number of copies printed, and yet the demand is greater than the bureau can supply.

In order to supply timely information of a special nature to members of the medical organization of the Navy, two supplements to the United States Naval Medical Bulletin are issued, viz, the Supplement for the Hospital Corps, which is intended to promote the instruction and interest of the hospital corpsmen, and Notes on Preventive Medicine. The latter publication, issued monthly by the Division of Preventive Medicine of the bureau, brings to the attention of members of the corps data of a statistical and sanitary nature, designed to assist them in solving problems throughout the service. This publication also serves as a medium for the distribution of instructions to medical officers governing medical administration which are issued by the bureau from time to time.

The Division of Publications supervises the issue of the Annual Report of the Surgeon General, United States Navy, which is limited by law to 2,500 copies. In this report may be found a summary of the activities of the Medical Department of the Navy for the fiscal year, and complete statistics of diseases and injuries for the preceding calendar year.

The Manual for the Medical Department of the United States Navy has been under revision during the year and is being made to conform with the new issue of the United States Navy Regulations. It will incorporate the medical details of administration which were formerly included in Naval Instructions and General Orders.

#### FORCE AFLOAT.<sup>1</sup>

##### UNITED STATES ATLANTIC FLEET.

The fleet has been remarkably free from serious outbreaks of communicable disease during the year 1920. There have been a few cases of cerebrospinal fever, several of scarlet fever, and the usual prevalence of mumps and measles.

The occurrence of malaria among the officers and crews of vessels, particularly destroyers, operating at points on the Mexican coast, as well as the general insanitary conditions prevailing there, has determined the frequent relief of these vessels. In spite of this policy, an undue amount of malaria has developed, particularly in those ships operating at Tampico. On this station the temperatures below decks are so high that men are forced to sleep on the upper deck, and although every effort has been made to protect the personnel from attack by mosquitoes by supplying nets, it inevitably follows that a certain proportion of men are bitten, and in this way the majority of the cases of malaria reported have occurred.

<sup>1</sup> As the important sanitary and epidemiological factors pertaining to the individual ships of the fleets have been published and commented upon in the Notes on Preventive Medicine issued monthly by the Bureau of Medicine and Surgery, the custom of presenting abstracts from the sanitary reports of individual ships will not be followed in this publication.

The presence of plague and yellow fever on this coast, more particularly at Vera Cruz, has imposed additional precautions as to health upon the vessels operating there and aggravated the discomforts incident to this duty, particularly in vessels of the destroyer type.

Of the hospital ships formerly attached to the fleet, namely, the *Solace* and the *Mercy*, the former was taken from a reduced commission status on January 3, 1920, on which date she sailed for Guantanamo Bay, via New York and Hampton Roads, arriving January 14, 1920, and has since remained with the fleet. The *Mercy* was detached from the fleet and ordered to the Pacific Fleet for duty late in the year 1919.

The *Solace* joined the fleet at Guantanamo Bay on January 14, 1920, and, with the exception of a period of detached service at Port au Prince, Haiti, late in the year, has been continually with the fleet, affording at all times prompt and efficient service to sick and injured personnel. Increased reliance upon this auxiliary rather than upon shore hospitals for hospital treatment of the sick has been enjoined upon medical officers, and, as a consequence of this practice and of the policy of holding medical surveys on this vessel instead of on the individual ships, commanding and medical officers generally have come to look upon the hospital ship as the first and main point of relief of the sick and the one from which, moreover, they may expect a prompt return of patients to duty. The continued presence of a hospital ship with the fleet and train, and the feeling, that should any individual require hospital treatment, such treatment is always readily available, can not but operate beneficially upon morale.

The U. S. S. *Relief* was commissioned in December, 1920, and has been assigned to the Atlantic Fleet, but, owing to nondelivery of some essential equipment, this vessel was still at the navy yard, Philadelphia, Pa., on December 31, 1920.

Sanitary inspections of 28 vessels were made during the year by the fleet surgeon, and the flotilla medical officer has conducted inspections of destroyers in reserve at Philadelphia and Charleston.

A revision of the Medical Department section of Inspection Form N. Nav. 71, has been made to bring its phraseology more into conformity with present conditions in the fleet, and with the terminology now in use in the medical department of ships.

Much effort has been given to the organization of proper methods by which the usual reports and returns from all ships of the fleet could be secured and to the institution of a system of instruction of pharmacist's mates by which errors and omissions would, in time, be eliminated.

Fifty deaths were reported during the year, 20 of these being caused by accidental drowning. The number of deaths reported for 1919 was 70. There was but one death reported from typhoid fever. A number of cases of serious burns have resulted from gasoline fires in motor boats, the largest ever reported in one instance being from a motor sailer belonging to the U. S. S. *Camden*, when 16 men were injured. Twenty medical surveys on personnel were received during the year.

On December 31, 1920, there were 55 medical officers distributed among 34 vessels of the fleet. Of the 170 remaining vessels of the fleet, to which no medical officer is attached, the majority are destroyers, which carry chief pharmacist's mates or pharmacist's mates, first

class. Destroyers in reserve are assembled in groups and these carry a pharmacist's mate and are provided for in respect of medical treatment by medical officers on accompanying tenders.

War conditions and the larger complements of ships which have ensued, both as a result of the war, and in order to meet new organization requirements, have combined to produce a notable congestion in certain ships of the fleet not originally designed to carry the numbers now assigned. For instance, the original complement of the U. S. S. *Utah* was about 900 men, distributed in 40 messes. This ship now has 1,300 men and 54 messes. Other ships present similar conditions. This state of affairs make a high level of cleanliness of living spaces more difficult to achieve, and narrows the margin of safety in respect of the transmission of communicable disease.

Ships' sanitary reports still comment unfavorably upon the combined system of heating and ventilation and none of the modifications thus far introduced appear to have been wholly effective in doing away with the disagreeable features of this system.

Experience has demonstrated that, from a hygienic point of view, the air distributed by a plenum system should be warmed solely for ventilation requirements and not for heating purposes, since, with the small initial air spaces aboard ship, undistributed hot air is very undesirable, and the proper regulation of its humidity is impracticable. It is considered that in cold weather the air should be delivered at a little above the temperature at which the contained air of the compartment is to be maintained, say, at 90° F., and with a relative humidity of from 50 to 60 and that the loss of heat from the space itself should be made good by steam radiators (electric heaters in small spaces) within the compartment itself.

Officers' messes in the ships of the fleet are still supplied with a type of water cooler which does not meet the ordinary sanitary requirements long since in vogue in civil life. Ice is handled by the bare hands of mess attendants, carried from a serving-out place in containers not always overclean, and placed directly in the water to be consumed. Some type of water cooler should be substituted for the one now issued and one preferably which provides a separate reservoir for the water and a cooling chamber for the ice, the chamber being traversed by a coil, through which the water passes without coming in contact with the ice.—Capt. F. L. PLEADWELL, medical Corps, United States Navy.

#### UNITED STATES PACIFIC FLEET.

During the calendar year 1920, the number of vessels in commission increased gradually from 132 in January to 165 in December. The fleet average complement in January was 21,813, in December 27,773. The general average for the year was 24,018.

The personnel of the Medical Department of the fleet consisted of 51 medical officers, 15 dental officers, 6 officers of the Hospital Corps (pharmacists) and 303 hospital corpsmen. The total admissions for disease during the year was 12,648, and for injury, 1,341. Disease caused 7 deaths, injuries 35 deaths.

Influenza and mumps reached epidemic proportions during the year. The former made its appearance in January on the ships at Puget Sound and by the end of February had, with but few exceptions, appeared on all vessels of the fleet. Accompanying influenza

was an unusually high admission rate for infections of the respiratory tract, particularly acute follicular tonsillitis and bronchitis. The high admission rate for bronchitis during the influenza epidemic would lead one to believe that many of these patients were suffering from mild attacks of influenza; in fact, a number of original admissions, as with bronchitis, were later changed to this diagnosis. The great majority of all influenza cases were of a mild type, complications being rare, no sequelæ following, and no deaths occurring on board any of the vessels. The epidemic subsided as quickly as it arose.

In June, 1920, the U. S. S. hospital ship *Mercy* joined the fleet. Well equipped and organized, and with a corps of specialists, this vessel has been a valuable adjunct to the fleet, especially as there are no hospital facilities for those vessels based at San Pedro, other than the dispensary at the submarine base, which is inadequate both in capacity and equipment for the needs of both the personnel of the base and the fleet.—Capt. J. H. IDEN, Medical Corps, United States Navy.

*Destroyer squadrons.*—During the year the various units of the force have done much actual cruising which has carried them to a variety of ports with resultant changes in climatic conditions and exposure to hygienic and health conditions of many communities. The points visited included all the ports of the Pacific coast of the United States and most of those of the Atlantic coast, Hawaiian Islands, Alaska, Mexican and Central American ports, Panama, Cuba, Porto Rico, Bermudas, England, Scotland, France, Italy, Spain, Portugal, Turkey, Syria, Russia, Egypt, and Malta. The health of the force has on the whole been very satisfactory.

The admission rate for all causes (original admissions and readmissions) for the entire force both on the Atlantic and Pacific was 630.43 per thousand. This rate compares favorably with the approximate rate of about 600 per thousand for the entire service to date and with the annual rate for the entire service calendar year 1919—676.02 per thousand. It is to be noted, however, that the admission rate for all causes (original admissions and readmissions) for the vessels of the destroyer force in the Pacific amounted to only 456.36 per thousand, which is much lower than the rate for the entire service and lower than the rate for the entire Pacific Fleet or the other forces composing the Pacific Fleet. Also it is much lower than the rate for the destroyer force of the Atlantic Fleet as indicated by figures available. Comparison of returns between vessels in the Pacific and vessels in the Atlantic have consistently demonstrated the greater incidence of disease and injury in vessels of the Atlantic.

There were 13 deaths reported from vessels in the Pacific, an annual rate per 1,000 of 2.05. Six of these deaths resulted from drowning, a rate per 1,000 of 0.949. Two resulted from explosion of steam pipe, 2 from fracture of skull, 1 from caisson disease, and 2 from gunshot wound. Three of these cases occurred while the men were on liberty, namely, 2 cases of gunshot wounds and 1 fracture of the skull. During the same period of time there occurred 6 cases of poisoning, 1 from alcohol, 1 from gasoline fumes and 4 from food poisoning, a total rate per 1,000 of 0.952.

The injuries numbered 232, a rate per 1,000 of 55.21. Falls caused the greater number of injuries, giving rise to a rate for the force of

14.51 per 1,000 of men, and causing 26.3 per cent of all injuries. A greater proportion of injuries from falls occurred on tenders than on destroyers or cruisers. Athletic sports furnished 13.8 per cent of all injuries, or a rate for the force of 7.61 per 1,000 of men. There were two homicides and one suicide, both of the homicides occurring during quarrels while on leave or liberty.

Venereal disease gave rise to 556 admissions and readmissions, a rate per 1,000 for the entire force of 87.96. For the destroyers of the force in the Pacific, the rate per 1,000 was 80.24, while that for destroyers of the force in the Atlantic was 401.18.

With the exception of the destroyers in the Atlantic, the rates given are lower than the rates for other forces of the Pacific Fleet and compare most favorably with the annual rate for the entire service for 1919, namely 111.62.

Influenza has given rise to the only real epidemic of communicable disease in the force, and even this was not serious. Acute follicular tonsillitis has at times been prevalent.—Commander J. L. NEILSON, Medical Corp, United States Navy.

#### UNITED STATES NAVAL DETACHMENT IN THE ADRIATIC.

The United States Naval Detachment in the Adriatic and eastern Mediterranean performed the usual routine of a force afloat, varied by incidents resulting from the unsettled condition of the various countries of this section of Europe. The detachment consisted of the U. S. S. *Pittsburgh*, until relieved by the U. S. S. *Olympia* on April 14, 1920, and from four to six destroyers, the number of which changed from time to time. In addition there were crews on the ex-Austrian battleships *Radetzky* and *Zrinyi* until these ships were given over to the Italian Government, in October, 1920.

Inspection of the vessels from time to time has shown very good sanitary conditions; the main cause of complaint being structural defects, principally of ventilating systems, which in all new type destroyers fail to perform adequately their function at sea.

The work of the Medical Department has consisted of the routine duty on board ship, and of special details on shore in connection with epidemics, sanitation in general for the protection of crews of vessels in port, and the aiding of various governments and the American Red Cross, in the landing and handling of 20,000 Russian refugees at Zelenica, Montenegro, after a period of 35 days at sea, under most distressing conditions.

The sanitary conditions of all ports visited have improved during the past year. Food and clothing have been more plentiful. A large number of infants died during the summer in the local hospital at Spalato, due to improper food, lack of milk, and to intestinal disorders, common in this vicinity.—Commander J. S. WOODWARD, Medical Corps, United States Navy.

#### HOSPITAL SHIPS.

*U. S. hospital ship Comfort*.—This hospital ship has spent the entire year at the navy yard, Mare Island, Calif., undergoing extensive overhaul and has remained in a reduced commission status.—Commander H. R. HERMESCH, Medical Corps, United States Navy.

*U. S. hospital ship Mercy.*—This vessel as a hospital ship has frequently demonstrated its usefulness to the fleet during the past year. Medical officers have shown high professional attainments and a willingness to perform their duties at all times. A close working cooperation has existed between the fleet surgeon and the commanding officer, and the medical officers of the fleet, through official channels, have been kept fully informed regarding opportunities for examination or treatment of patients afforded by this vessel.

There were 433 original admissions to the hospital ship during the year, of which 221 were for communicable diseases—mumps, influenza, tuberculosis, and venereal disease predominating. The number of cases admitted with the diagnosis of influenza was 39. In view of the fact that these figures include the sharp epidemic of that disease during January and February, this is not an excessive number.—Commander W. M. GARTON, Medical Corps, United States Navy.

*U. S. hospital ship Relief.*—This vessel was completed at the Philadelphia Navy Yard during the year, and it is expected that she will join the Atlantic Fleet early in 1921.

Equipped with many modern devices for safety and comfort and the care of sick and wounded, with a bed capacity for approximately 500 patients, the *Relief* incorporates in design and equipment the appointments of a modern hospital. In addition to being prepared to care for the sick and injured of the fleet, the *Relief* is also fitted as a fleet medical supply depot, so she may fill requisitions from ships for emergency medical supplies. The ship has provision for carrying a field hospital, with tentage, drugs, instruments, ranges, cots, ambulance, etc., so that at time of emergency or catastrophe she could place on shore with a landing party a field hospital ready for service.

To operate the ship there is provided a crew of 400 officers and men. They are divided for purposes of organization into a deck, engineering, supply, and medical department, each a coordinating and cooperating division. In addition to the men of the Hospital Corps comprising the Medical Department for the care of the sick, there is detailed a group of 11 members of the Navy Nurse Corps (female).—Commander R. C. HOLCOMB, Medical Corps, United States Navy.

*U. S. hospital ship Solace.*—This vessel served throughout the year with the United States Atlantic Fleet. There were 246 patients admitted to the ship for the first time during the year, 61 of whom suffered from communicable diseases. Measles and mumps, brought to the fleet by recruits from the training stations, predominated. One case of typhoid fever developed among the crew. The disease was contracted at Santiago de Cuba, undoubtedly from infected water. Another case of typhoid, which terminated fatally, was received from the U. S. S. *Nevada*. The records of both these patients showed that typhoid prophylaxis had been administered. Cowpox vaccination has been given to 445 persons on board at various times with 236 "takes."

One hundred and four major surgical operations were performed. In the X-ray department 286 patients were radiographed and 675 plates were used; 845 tests and examinations were made in the laboratory.—Commander R. W. PLUMMER, Medical Corps, United States Navy.

## HOSPITALS.

*Annapolis, Md.*—Many improvements have been carried out during the year, notably in connection with the fire-alarm system and the lighting system. The so-called "four-in-one" type of overhead fixture which had been installed in some of the temporary buildings has proved very satisfactory. In the four wards of the main building very attractive porcelain wall fixtures have been installed throughout. The shade is an oval of ground glass, inclosing the horizontal bulb so that the entire effect is attractive in the day time, sanitary because easily cleaned, and giving a soft well-diffused light when in use.

Considerable alteration with increased efficiency has been effected in the commissary department and kitchen. Two new rooms were built between the kitchen and main mess hall, both having tiled walls and floors, one for use as a pantry, and the other as a dish-washing compartment containing a new dishwashing machine of modern type. The refrigerating plant has been expanded by the addition of two new compartments. Adjoining the refrigerating plant an entirely new addition has been built to the commissary building, containing one large storeroom for general commissary supplies, an issuing room, and a tiled butcher shop. In this latter an ammonia ice-cream freezer has been installed, which will operate from the cold-storage plant. Adjoining the storeroom is a platform with a screened compartment for the garbage cans, which are fly-proof in character. The mess halls themselves have been plastered, so that the walls are now impervious, readily cleaned, and attractive in appearance.

A small wooden one-story annex has been erected adjoining and connected to the nurses' home for use as a sitting room. It has a front porch and large open fireplace, the whole interior being extremely attractive. Another important change which has added to the comfort of nurses has been the assignment of the annex to accommodate the additional personnel.

With the present complement of the Naval Academy the temporary buildings erected during the war must continue in use unless others of more substantial type replace them. This is a matter which deserves the most serious consideration, as these buildings have already greatly deteriorated and become a constant source of expense for upkeep.

There were on duty at this hospital at the beginning of the year 8 medical officers, 2 pharmacists, 13 female nurses, and 47 hospital corpsmen, and 42 patients were under treatment. During the year 1,690 patients were admitted or readmitted, representing 28,978 sick days; 8 patients died.

The surgical staff performed 32 major and 105 minor operations. The X-ray department handled 835 patients, making 2,136 exposures. In the laboratory 5,886 tests or examinations were made.—Capt. T.W. RICHARDS, Medical Corps, United States Navy.

*Canacao, P. I.*—There has been an increase of 4,196 sick days over last year. Of the total 25,416 sick days for diseases, 7,927 were for venereal disease. The major operations numbered 59, the minor operations 52, with 1 death in a case of gangrenous diverticulitis. The total number of patients treated was 11,382.

The general condition of all the hospital buildings and the grounds is very good. Much attention has been given to the care of the grounds during the year, with the result that they now present a beautiful appearance.—Capt. J. M. BRISTER, Medical Corps, United States Navy.

*Charleston, S. C.*—The hospital, which is about a mile from the navy yard, is built upon a small hill with an elevation affording excellent drainage. It is composed of a number of wooden buildings constructed to meet the emergencies of war. The hospital possesses 16 wards and is well equipped for the isolation and treatment of communicable diseases, having four wards divided into separate compartments, with diet kitchens. The administration building is well supplied with offices and is excellently equipped for all necessary clinical work. The water supply is sufficient and of good quality. All garbage is burned in an incinerator. The food supply of the locality is ample and of excellent quality.

During the year 1,532 patients were admitted and 1,447 were discharged, while 9 died. There were 38 men invalided from the service.

The operating room is a wooden structure which was constructed to meet modern surgical requirements, and its equipment and fittings are modern and ample for all general surgical work. The operating staff performed 32 major operations and 171 minor operations during the year. The hospital possesses a well-equipped laboratory in which 4,796 examinations and tests were made.—Capt. EDGAR THOMPSON, Medical Corps, United States Navy.

*Chelsea, Mass.*—All war construction begun before the signing of the armistice has been completed and accepted. The internal administration of the hospital has greatly improved. The morale of the hospital corpsmen has been much enhanced by the benefits derived from the clubhouse erected by the Knights of Columbus. The new group of semipermanent buildings containing 12 wards, Hospital Corps barracks, receiving ward, and subsistence building, with a total capacity of 420 beds, was not turned over to the Government until May, 1920.

Much work has been done to maintain and improve all buildings and walks, to effect drainage where necessary, and to increase the attractiveness of the grounds. Besides 2,000 evergreen trees and 150 poplars and elms, 3,500 shrubs and fruit bushes of different types have been planted. Thanks are due to Mr. A. H. Shurtleff, the landscape architect of Boston, who has given his valuable services free of charge to the Government for this work. Steps have been taken to effect the evacuation of squatters who in recent years have increasingly invaded Federal property on the north side of the reservation and occupied it with fences and buildings. The matter has been before the courts for some time. Increased water supply has been contracted for. The work of exhuming bodies interred in the old naval hospital cemetery and transferring them with appropriate ceremonies to Woodlawn Cemetery, Everett, Mass., was finished August 5, 1920. The ground thus made available will be used for recreation and athletics. Every effort has been made to keep down the cost of subsistence, but owing to market conditions the ration has gone up since 1919 from \$0.6755 to \$0.905.



During the year there were 462 admissions, 968 readmissions, 4 deaths, 86 were invalided from the service, 2 deserted, 98 were carried into next year, 808 were discharged to duty. The total number of sick days was 38,417.

The operations performed under ether during the year numbered 297.

The orthopedic department of the surgical service has been conducted with gratifying results along the lines established by Dr. Charles F. Painter, during his connection with the Navy. The daily average of orthopedic cases was 35. The average number of genitourinary cases has been 30 per diem. The admission to the eye, ear, nose, and throat department amounted to 476, of which 271 were for diseases of the tonsils. Prescriptions to the number of 500 have been written for glasses.

In the dental department 1,669 treatments or operations have been carried out. The general condition of the teeth and mouth, as observed in the recently enlisted personnel, is noticeably below the Navy standard. In the X-ray department 1,696 examinations have been made, a drop of 1,701 from the record of last year. In connection with the examinations 8,500 plates and films were exposed.

The work of the Red Cross chapter at this hospital during the past year has been very efficiently performed, and the commanding officer can not speak too highly of the cooperation of these splendid women in building up the morale of the patients.

The work of the occupational therapy department has been most successful during the past year, and particular attention is invited to the success which has been attained with venereal, contagious, and court-martial patients. These men get no liberty and some of them no pay, and, as time hangs rather heavy on their hands, they become discontented and restless, which brings about minor infractions of discipline. With an occupation such as is furnished by these workers, time passes more pleasantly, the men learn something worth while, and they receive a certain financial benefit from their work. The contentment of these patients has increased so enormously that there is scarcely ever an infraction of regulations sufficiently serious to be brought to the attention of the commanding officer. This work is the most important that has been introduced into this hospital in recent years. The department is in charge of a full-time worker who has four aides and who has systematized and brought the matter of supplies and sales to a business basis. During the year 881 patients were at work, completing 1,455 articles.—Capt. N. J. BLACKWOOD, Medical Corps, United States Navy.

*Fort Lyon, Colo.*—The United States Naval Hospital at Fort Lyon, with its farm land, covers an area of 1,100.85 acres and is 7 miles from the town of Las Animas. A good road connects the two places, but there is no connection by car line or railroad. The original hospital reservation in 1904 comprised 575 acres. In 1917 and 1918 532 acres were purchased. The only addition in 1920 was the purchase of one-half acre as a site for an irrigating pump well. The greater portion of this land is under cultivation for the raising of alfalfa, corn, oats, and vegetables.

The Navy duty personnel on December 31, 1920, consisted of the following: Sixteen medical officers, 1 dentist, 6 pharmacists, 1 chap-

lain, 1 paymaster, 1 pay clerk, 1 civil engineer, 21 nurses, and 102 hospital corpsmen.

The total number of sick days for this hospital in 1920 was 158,298, which gives a daily average sick rate of 432. There were 550 patients under treatment on January 1, 1920, 1,041 cases were admitted, 1,180 were discharged, 79 deaths occurred, and 411 patients remained in the hospital December 31, 1920.

The surgical operations performed number 167. The laboratory work consisted of 4,181 examinations and tests.

The clinical procedure of this hospital is as follows: All new cases are placed into a receiving ward in the infirmary, put to bed, and kept there for about 2 weeks. All preliminary examinations are made and recorded there, such as X-ray and physical examination of the chest, examination of sputum, urine, throat and larynx, feces and blood. A careful history of the patient is taken. He is then transferred to an observation ward if the diagnosis is not clear, or to one of the tuberculosis wards if the case is manifestly one of tuberculosis. All bed cases are kept in the infirmary, where they are under the observation of a nurse and where proper care and diet can be secured. Cases without general symptoms but otherwise positive are transferred to one of the lean-to wards. All cases which, in the opinion of a consultation board, are probably not tubercular are kept in a separate lean-to under observation for a reasonable time until the diagnosis of no tuberculosis can be safely made. They are then sent to duty at the Mare Island Navy Yard.

During the year the sodium morrhuate treatment of tuberculosis has interested many of the medical officers, and it has received a faithful trial. The impression, however, has not been very favorable as to its efficiency. The production of artificial pneumothorax, has, on the other hand, been done in proper cases with much enthusiasm because of visible excellent and immediate results. This treatment reduces the temperature, lessens the toxemia and cough, and while the final results have not as yet been noted at this institution, still the immediate results have been so striking that its use will be extended. Vaccine treatment in mixed infections has not produced favorable results. For joint tuberculosis surgical intervention with chiseling into the focus, curetting, cauterization, drainage, and immobilization has shown expected results.

Intestinal tubercular ulcerations have not been modified by any treatment. As the ulcers are so multiple and extended over such wide areas, surgery probably can only do good in a limited number of cases.

Heliotherapy at the proper season has been faithfully followed up by practically all patients. The treatment by inhalation of various solutions for possible curative effect on the tubercular process, has been abandoned. Laryngeal complications have been greatly benefited by appropriate local treatment. In ulcerative conditions of the epiglottis, epiglottidectomy has been done with benefit to the sufferer.

The daily records show that during the year 1920, 35,467 gallons of milk were produced, as compared to 24,088 gallons in 1919. The hospital herd is composed of 13 pure breds and 197 grades. Of this number 72 are steers. More than half of these will probably be

slaughtered this summer. The piggery is located about 2 miles from the hospital and contains 162 pigs. There has been effected a reduction of \$16,733.19 in the expense of operating the farm. It is expected that in the coming year the herd will be large enough to furnish all the milk required for the institution and that expense connected with the farm will balance with the income.

The Red Cross activities are carried on by one field director, one associate field director in charge of home service, one recreational director, a hostess, and two occupational therapy workers. The Red Cross house is located conveniently near the men's infirmaries. The great majority of all entertainments, such as movies, dances, and vaudeville performances, etc., are given there. The hall, however, is too small for the audience on special nights, and civilian employees and their families have then to be excluded. The occupational therapy workers have established classes in embroidery, basket weaving, knitting, etc., and the men apparently take a great deal of interest in the work. The War Risk Insurance Bureau intends to detail teachers to this hospital for the instruction of men in primary, and later in advanced studies, in order to prepare them for vocational training. The banking system established by the Red Cross has been a great success. During the year 2,633 deposits were made amounting altogether to \$179,440.11.—Capt. F.W. F. WIEBER, Medical Corps, United States Navy.

*Great Lakes, Ill.*—The professional activities of this hospital have been less than in 1919. The daily average of patients was 455 in comparison with 659 for 1919. The main hospital building has been kept in a satisfactory state of repair and the wards are in an excellent condition. The hospital is well equipped with modern buildings for the care and treatment of communicable diseases.

The hospital grounds have been beautified materially during the past year. Flower beds have been built in various places. Old dilapidated wooden sidewalks have been removed and neat serviceable cement walks substituted. The entire reservation has been fenced in with suitable lawn fencing, which not only improves the appearance, but protects the grass plots from trespassers. A new entrance way to the nurses' quarters has been built and a fountain installed. The greenhouses have been enlarged, thus giving us a greater supply of flowers and plants to be distributed to the wards. Three groins have been placed by the public works department on the lake front. This has caused the beach to fill in with sand and protects the bank of the reservation from the effects of violent storms on Lake Michigan. During the year a bandstand has been built in the park in front of the main building. In this stand, band concerts are held every Tuesday afternoon, weather permitting. The old armory in Camp Ross has been converted into a very neat and serviceable chapel. The north end of Camp Ross has been converted into a Hospital Corps training school, capable of accommodating 500 men. A suitable wire fence has been built around the school. During the year the cemetery has been remodeled, fenced in by a desirable wire fence, walks constructed and the entire grounds replotted. Ten 2-bed bungalows have been completed and were in constant use during the summer for con-

valercent empyema patients and cases of pulmonary tuberculosis. Patients in these bungalows did remarkably well and showed improvement as soon as given this outdoor treatment, and, in view of this fact, the building of more bungalows is being considered.

This hospital is equipped with two operating rooms, one in the main building for general surgery, and one in the eye, ear, nose, and throat department. The main operating room during the year has been equipped with a Bartlett "No-Shado" lamp, which is very satisfactory. A Heidbrink gas, oxygen, and ether anaesthetizer has been procured and is satisfactory. During the year 444 operations were performed in the main operating room. This is exclusive of operations performed in ward dressing rooms for abscesses, phimosis, empyema, etc. Of the 444 operations, 200 were for major conditions, including 115 appendectomies, 65 hernias, 3 cholecystectomies, 2 gunshot wounds of intestines, 5 exploratory laparotomies, and 4 trephines of the skull, including one for brain abscess.

The ear, nose, and throat operating room has been repainted a dull black during the year. This room is equipped with two sets of curtains, rendering it possible to make the entire operating room a dark room. A tiled floor is urgently needed, as the present wooden floor has become considerably worn. During the year there were performed 887 operations, 52 of which were mastoids, 114 nasal operations, 694 tonsillectomies, and 27 abscesses, pharyngeal, and tonsillar.

This hospital is equipped with a modern laboratory. A summary of the work done during the year is as follows: Seventy-two cream and milk analyses, 9 gastric analyses, 3,578 urine analyses, 36 autopsies, 11,454 blood counts and smears, 13 dark-field examinations, 1,266 diphtheria cultures, 61 feces examinations, 758 sputum examinations for tubercle bacilli, 53 urethral smear examinations, and 318 miscellaneous examinations and tests, which includes blood cultures, Widal tests, examinations of spinal and pleural fluids, and typing of pneumococci.

During the year the X-ray department has been very active, having taken care of 2,064 patients. From one to five plates, with a general average of three exposures per person, were taken. There were 328 fluoroscopic examinations. Twelve patients who were treated for skin diseases were discharged as cured. Thirty-five cases were treated by electrotherapy. During the year the X-ray department was enlarged from one to three rooms. A new dark room was built and the old dark room converted into a storeroom. A high-frequency machine, a Kromayer lamp, and an Alpine sun lamp were installed. At present the X-ray department is able to deal with any class of work in roentgenology, electrotherapy, or ultraviolet ray therapy. A new electric baker has been installed in the hydrotherapy room. One hundred and ninety patients were treated here. The work in the dental office included 661 dental treatments, 39 tooth extractions, 77 root extractions, besides a corresponding number of fillings. There were 5 fractured jaws wired. In the eye department 105 refractions were made.—Capt. T. A. BERRYHILL, Medical Corps, United States Navy.

*Gulfport, Miss.*—It is interesting to note that during the entire period this hospital has been in commission, nearly three years, there

has not been a single case of measles, and only one case of scarlet fever and one of cerebrospinal fever, which occurred in the spring of 1920.

The number of cases of malaria has not been large and in nearly all of those cases it has been clear that infection occurred prior to arrival in this locality. In the others there was sufficient doubt as to the origin to make it very probable that conditions here were not responsible. This result has been due in great part to the antimalarial work carried on along the coast. However, effort in that direction has been less active of late, and mosquitoes of local origin have correspondingly increased.

Although there has been no case of measles, cases of mumps have been in evidence. However, during the existence of this hospital there have been less than 50 cases of mumps, but recently a number of such cases have been received, epidemic influences being in evidence.

Diphtheria occurs in this locality in isolated cases throughout the year. No epidemic has appeared on the station, but cases have been received occasionally at this hospital. Pneumonia is more prevalent.

The disease that has attracted chief attention during 1920 is *uncinariasis*. It is considered that about 30 per cent of all recruits arriving in this locality harbor hookworms. Most of these cases require three periods of treatment before the stools become negative. This has necessitated considerable laboratory work and the devotion of no small part of this hospital to such patients. Of course all cases at the station originated elsewhere, but the condition is not uncommon along the coast.

As time passes the hospital plant shows the effect of age more or less, but the deterioration has been relatively small when one considers that it was rapidly constructed, chiefly of wood.—Capt. J. D. GAREWOOD, Medical Corps, United States Navy.

*Hampton Roads, Va.*—The buildings of this hospital are of temporary construction, built of such material as was available in war time, hurriedly erected, and therefore deterioration is progressing considerably more rapidly than would be the case with permanent buildings constructed of selected material and at the convenience of the Government. The arrangements for prevention of fire at this hospital are believed to be as satisfactory as practicable. Fire quarters are regularly held, and extinguishers are placed at satisfactory locations in the several buildings which constitute the hospital. The naval base has a highly efficient fire department, one unit of which (engine and fire company) is stationed one block from the southwest corner of the hospital reservation, and in case of fire the hospital would have to depend largely on this department to prevent conflagration among the temporary buildings.

The general sanitary arrangement of all buildings included in the hospital grounds is good.

The laundry and sterilizing apparatus are operating under high pressure. The large number of patients in the hospital has caused a great increase in the clothes to be washed, and, as it is impossible to employ additional laundry force, it has been necessary to utilize the services of convalescent patients in this work, a policy which is most undesirable but necessary to meet the emergency.

The personnel of the hospital has been efficient in the performance of the multifarious duties devolving upon it. The medical officers have been unremitting in their care of the sick and the clerical force has met the overdraft upon them efficiently and faithfully.

The surgical service at this hospital has been active and extremely efficient. The personnel from which this hospital draws its patients is young and susceptible to the various communicable diseases, consequently there have been a considerable number of cases of measles, mumps, scarlet fever, diphtheria, German measles, and an occasional case of variola.

There remained 201 persons in the hospital from the calendar year 1919, and the admissions and readmissions amounted to 4,582, making a total of 4,783 persons treated in the hospital during the year. In addition to this a considerable number of patients from the training station report daily for special examinations (eye, ear, nose, and throat, etc.), and these examinations represent additional work performed by the medical officers attached to this hospital.—Capt. J. C. PRYOR, Medical Corps, United States Navy.

*Key West, Fla.*—During the calendar year 1920, 352 patients were admitted to the hospital. 268 were discharged to duty, 20 were invalidated from the service, 21 were transferred to other institutions, and 5 died. The total number of sick days for the year was 8,307. On January 1, 1921, 5 medical officers, 3 nurses, 6 hospital corpsmen, and 19 civil employees were attached to the hospital. The medical and surgical work has decreased with the continued demobilization and contraction of naval activities incident to return to peace-time conditions. The naval air station has been placed out of commission, its personnel released, and most of the buildings destroyed. The number of vessels visiting the naval station has not been great and the work of the submarine base has been much reduced.

The geographical location of Key West and its relations to the West Indies, Mexico, Central America, and the Isthmus of Panama are such that it may be assumed that it is desirable to have at this point rapidly expansible facilities for meeting emergency needs. The sanitary features and sanitary problems of Key West are practically unchanged. The existence of bubonic plague at various ports which have commercial relations with the United States and the discovery of infection in rats and of a few cases of human plague in ports of the United States located on the Gulf of Mexico caused all such ports to be considered as under suspicion. A well-conducted rat survey in Key West, in which cooperation was secured between the United States Public Health Service, the Florida State sanitary authorities, the naval authorities at Key West, and the city council, gave only negative results. Rat catching was intensively carried out on naval reservations and extensive ratproofing was done, but outside the reservations conditions show little or no change and leave much to be desired.

Attempts to secure water from artesian wells have not been successful, and the only visible means of providing an adequate water system for Key West is to bring it by pipes laid over the keys along the right of way of the Florida East Coast Railway System.

The naval station is to be equipped with a new distilling plant, which in emergencies would meet actual necessities, although at an unduly high cost. Funds have been appropriated and are now available and a considerable amount of material for the equipment of the plant has already been delivered.

Supplies of fresh provisions, especially of fresh fruits and vegetables, are very limited. Very little is grown in the vicinity and

such articles as are grown elsewhere in Florida are shipped to better markets.—Capt. M. F. GATES, Medical Corps, United States Navy.

*League Island, Pa.*—The beginning of the year found this institution established in portions of what was termed the "old" and the "new" hospital. When it was decided to maintain this establishment as the only naval hospital at this station, certain old buildings were removed, new structures started during the war were completed, an operating pavilion was erected, and the building formerly used as a seamen's barracks was converted into a dormitory for civilian employees.

There are four wards for the care of communicable diseases. It has been the practice in the treatment of these diseases to carry out the Chapin technic. There has been only one instance of a possible cross infection, in the person of a hospital corpsman who came down with chicken pox. This method simplifies the care of minor communicable diseases by obviating the necessity of occupying three or four different wards with only one or two patients in each.

The hospital water is furnished by the city, and, as far as the hospital is concerned, has been free from contamination, although there has been evidence of fecal contamination in the yard due to cross connections with the Delaware River service. This, however, has apparently never backed up as far as the hospital. This matter was investigated by the medical officer of the yard, and, with the assistance of the hospital laboratory, the condition was remedied. The fire mains, the flushing system, and the faucets for garden irrigation are all connected with the local Delaware River water lines. It was found that some persons were in the habit of drinking from these garden faucets, so they have been conspicuously labeled "dangerous."

The hot-water heaters originally installed, in which there was a direct admixture of steam with water, have been found unsatisfactory, as overheating frequently occurred causing rapid deterioration of the pipe lines and valves. All of these heating appliances have been replaced by large tanks and automatic regulators which are satisfactory.

The hospital is well equipped with fire-extinguishing appliances. Fire drills are held weekly, and occasionally in conjunction with the yard fire department. All wards are provided with stretchers for use in case of emergency. Special attention is given to the prevention of fires by the avoidance of collections of trash in and about the buildings and by limiting the places in which smoking is permitted.

The galley is in excellent condition and is completely supplied with all the necessary apparatus. The electric ranges, from the point of view of the commissary department, are excellent. From the viewpoint of economy it is believed that they are an expensive luxury, the cost for maintenance for the past year being about \$2,400. Early in the year considerable difficulty was experienced in the frequent burning out of the heating units.

The diet has been varied and ample in quantity. No complaints have been made; in fact, there seems to be general satisfaction with the food. For convalescents other than cripples the cafeteria system is used, resulting in each individual getting the food he desires and in suitable quantities while it is still hot. Special attention is given to the sterilization of mess gear, and it is believed that the freedom of this hospital from any local epidemic disease is due to this procedure.

A great deal is being done to keep the personnel suitably occupied and contented. Entertainments are given in the recreation room every night except Wednesday, Saturday, and Sunday, these being the liberty days for convalescent patients. In addition to this there are many persons working in conjunction with the Red Cross for the welfare of the patients. The recreation room, fitted up in the administration building, has been very useful. Ward No. 7 has been utilized for card playing, pool, and moving pictures.

There are on duty at this hospital 18 medical officers, 4 pharmacists, 23 nurses, 102 hospital corpsmen, and 95 civilian employees.

There were 281 patients carried over from 1919. During the year 3,637 were admitted, 2,812 discharged to duty, 676 diagnoses changed, 56 died, 152 were invalided from the service, 22 deserted, and 200 cases were carried into 1921. Aside from an influenza epidemic early in the year, no serious epidemic disease has been particularly noticeable. There seems to be a comparatively large number of cases of hyperthyroidism. The rapid recruiting in the service is, as usual, accompanied by an undue number of psychopathic cases. It would seem that many of these cases should have been recognized at the time they were enlisted.

During the year over 400 major operations were performed by the surgical staff without mortality. This does not include operations on the eye, ear, nose, and throat, and for venereal conditions.

The eye specialist has done a great deal of work for out-patients as well as for patients in the hospital. During the year 463 operations have been performed in the nose and throat department. Of these 311 were tonsillectomies, 53 adenoidectomies, 110 submucous resections, 22 turbinectomies, 12 removals of polypi, 6 ethmoidectomies, and 2 simple mastoids. One death occurred following a tonsillectomy done under ether. The cause of death was traceable to an enlarged thymus gland. Practically all of the nose and throat work has been done under local anesthesia (cocaine, 0.1 of 1 per cent). This has proved very satisfactory. It is a pleasure to note the marked improvement not only in local conditions, such as sinus disease and otitis media, but also in the general health following operations on the nose and throat.

This hospital has taken about 100 Bureau of War Risk Insurance patients since September. These patients have been placed in the wards with the Navy patients, and, as a rule, have conducted themselves well, being amenable to discipline and willing to assist about the wards. About 50 per cent of these cases have been admitted for removal of tonsils. The next most frequent type of case has been for examination on account of vague and varied conditions.—Capt. A. W. DUNBAR, Medical Corps, United States Navy.

*Mare Island, Calif.*—The year has been one of great activity. For many months this hospital has accommodated a larger number of patients than any other naval hospital.

The following changes in the hospital buildings and grounds have been accomplished: A new nonclimbable fence has been installed around the entire compound. The naval cemetery has been enlarged by the inclusion of a strip of land 50 feet wide and 230 feet long. Large sheltered porches have been added to the unit buildings for the accommodation of patients requiring the open air. A new Otis elevator has been installed for use of the personnel of the main build-



ing, and the freight elevator and another passenger elevator have been thoroughly overhauled. A new post office has been occupied. A reinforced concrete room for the storage of liquor and valuable or dangerous drugs has been erected in the basement of the main building. A new central file room has been constructed in the basement under the general offices. This room is connected with the offices above by stairs, dumb-waiter, voice tube, and paper chute. It contains metal filing equipment and is a great improvement over the old filing system in use at this hospital.

A new X-ray machine was installed and the hospital now has a complete and up-to-date X-ray department.

At the beginning of the year 20 medical officers, 1 dental officer, 2 pharmacists, 48 female nurses, and 174 hospital corpsmen were on duty, and 626 patients were under treatment. During the year 7,335 patients were admitted or readmitted, representing a total of 199,705 sick days; 111 of these patients died. The surgical staff performed 284 major operations during the year.—Capt. AMMEN FARENHOLT, Medical Corps, United States Navy.

*New Orleans, La.*—This hospital, containing 212 beds, was placed in commission on November 12, 1917. Attached to it are 6 medical officers, 5 female nurses, 18 hospital corpsmen, and 42 civilian employees.

There has been no new construction during the year. Ratproofing of all the buildings has been completed. Concrete walks throughout the grounds have replaced the old board walks, a change required by the necessity of ratproofing.

A large vacuum pump was installed this year to free the trenches through which the steam pipes pass from the power house to the hospital building of surface drainage. This pump has operated successfully thus far during the winter season and has relieved us of accumulations of water caused by the flooding of the trenches with consequent impairment of the heating facilities.

The laboratory is of service not only to the hospital but to all divisions of the medical department of the station and to the medical officers of any vessels of the United States Navy which may be in port. The total number of specimens examined during the year was 4,741. The X-ray department made 211 examinations, at a cost of \$520.60, or \$2.46 per patient.

At the beginning of the year 51 patients were under treatment. During the year 740 patients were admitted or readmitted, 2 died, and 33 were transferred to other institutions. The total number of sick days was 18,217. The surgical staff performed 58 operations.—Capt. C. M. DE VALIN, Medical Corps, United States Navy.

*Newport, R. I.*—All the hospital buildings are well constructed, equipped, lighted, ventilated, drained, and are in good general condition. The water used by the hospital is supplied by the Newport Waterworks and has been satisfactory in quantity and quality. During the past year 29,366,869 gallons of water were consumed, at a cost of \$7,341.65.

A very great improvement has been made in the lighting over the operating tables in both operating rooms. In each room the five old-fashioned crystal globe lamps have been removed and replaced with the "Bartlett No Shado Lite," which consists of eight parabolic reflectors suspended from a ring about 6 feet in diameter. The

lights are arranged to focus on the field of operation at an angle of about 45°.

Electric current for lighting and power was purchased until near the close of the year from the Newport Country Electric Co. The cost of current supplied to the hospital premises for the year was \$6,843.67 (this is exclusive of \$466.96 for the nurses' quarters). In the future current will be obtained from the new transmission line from the naval torpedo station. Assuming that the same amount of current will be used as in the past, a considerable annual saving is anticipated by the adoption of this plan.

Gas is purchased from the Newport Gas Light Co. for cooking purposes.

During the year 2,901 tons of bituminous coal were used in the power house, at a total cost, including delivery, of \$21,959.43, an average cost of \$7.57 per ton. The anthracite coal required for the hospital kitchen and for cooking and heating at the nurses' quarters amounted to 347.68 tons, at a total cost of \$6,304.28, or an average cost of \$18.14 per ton.

There are attached to this hospital 9 medical officers, 20 female nurses, 5 chief petty officers, and 64 hospital corpsmen. The civilian force of skilled and unskilled employees number 65, 38 men and 27 women. The employment of the civilian clerical force and a telephone operator on July 1, 1920, at this hospital, has proved to be a very satisfactory solution of a trying problem.

The total number of operations performed in the hospital during the year was 463, consisting of 181 major operations and 282 minor operations.

Recreational activities have been continued under the direction of the welfare and athletic officer. The allotment to this hospital of the department's welfare appropriation from the Sixth Division, Bureau of Navigation, has been \$100 a month from July 1, 1920. This has been used in giving motion-picture entertainments in the convalescent building. Accumulated profits on hand in the ships' store in the spring, enabled the hospital to renovate the old tennis court and construct two additional ones, with all necessary grading, surfacing, and fencing. These courts have afforded a very desirable form of recreation for hospital corpsmen and have been much enjoyed.—Capt. J. F. LEYS, Medical Corps, United States Navy.

*New York, N. Y.*—During the greater part of the year this hospital was filled almost to capacity. Extensive building operations, commenced in 1918 were in part completed, and numerous projects carried out by the public works department of the New York Navy Yard, were noteworthy from the standpoint of resulting comfort, increased facilities, and general improvement.

The buildings and grounds have improved in appearance during the year, due to the commendable efforts of the civilian employees of the hospital. Acting under instructions from the Navy Department and the Bureau of Medicine and Surgery relative to retrenchment, the hospital reduced its civilian force from 255, the total on December 31, 1919, to 208, the total on December 31, 1920. Considering the magnitude of the establishment, with its constant and insistent demands for upkeep, it is difficult to conceive of any further reduction in the force without serious detriment to the Government.

The garage force has been responsible for 7,504 ambulance trips, totaling 42,469 miles.

On January 1, 1920, there were 33 civil service clerks on the clerical force of the hospital. On December 31, 1920, there were only 11 clerks on duty. The number of patients carried over from 1919 was 571, and the number of admissions during the year was 5,164. There were 30 deaths.

The total number of sick days for the year was 161,618, and the number of patients continued to 1921 was 441. The number of major surgical operations performed was 430.

During the months of January, February, and March, the department of internal medicine was mostly concerned with the care of influenza. Every described complication of the disease was observed, but no unusual clinical or therapeutic feature worthy of report was noted. There were at one time seven wards of building E in commission for the treatment of this disease and its complications.

There has been a group of gastrointestinal cases treated by duodenal lavage with the Einhorn and Rehfuess tubes with gratifying results.

During the latter part of September and the first of October, 90 cases of beriberi were received from the battleship *Minas Geraes* of the Brazilian Navy, which was at the navy yard, New York, for repairs. The first three cases received were practically moribund on arrival at the hospital; one dying in 48 hours, one in 3 hours, and one immediately. Capt. F. E. McCullough, Medical Corps, United States Navy, and Lieut. W. B. Dukeshire, Medical Corps, United States Navy, went to the ship to consult with the medical officer regarding a general change in diet for the crew and also to see if there were other cases of mild degree that required hospital treatment. After the consultation, 60 cases were sent immediately to the hospital and within the next few days 27 more. The effect of the change in diet was the absolute stopping of the epidemic. Of the 87 cases, none died and all were returned to the ship by January 17.

The department of physiotherapy was opened October 8, 1919. By January 1, 1920, the work was thoroughly organized and with the new apparatus and trained personnel was fully functioning. Since that time there have been 48,560 treatments given.

The eye, ear, nose, and throat department has been active. The number of refractions, including post-cycloplegic tests, was 740; the number of treatments for diseases of the eye was 5,931; the number of perimetric examinations was 24; the number of eye operations was 102. There were 968 nose and throat operations. In the pathological laboratory 15,479 examinations and tests were made, and 2,260 patients were examined by the staff of the X-ray department.

During the past year, the average number of admissions each month to the neurological and psychiatric department has been 20, and the same number of patients have been disposed of. There have been as many as 35 patients in the ward at one time and at other times the number has decreased to 17. The psychoses have been transferred to the psychopathic ward of the United States Naval Hospital, Washington, D. C., for further disposition. Those constitutionally inferior, the mental defectives, and the feeble-minded patients have been discharged to civil life as soon as their condition became

normal. The psychoneuroses have been retained under treatment until their condition has been adjusted or relieved; in most instances it has seemed best to discharge them to civil life, as they have proven their inability to meet the service requirements. In some few instances circumstances have been such that it has been possible to return patients to duty. There have been a number of cases of prison psychoses occurring, usually in constitutional psychopathics or defectives who were court-martial prisoners and in whom the psychotic reaction disappeared soon after their admission. In these cases it was found that they were invariably mentally irresponsible for the offenses with which they were charged. There have been a number of organic neurological disorders, several of which have been retained in the hospital for long periods because of their chronicity and because of the difficulty of otherwise disposing of them. Even though they are eligible to receive the benefits of the Bureau of War Risk, the hospital facilities available would not justify their discharge. There has been the usual proportion of neurosyphilitic disorders, including locomotor ataxia and dementia paralytica. It has been frequently noted that cases of paresis have been enlisted when they exhibited physical signs as well as mental symptoms of the disease. This has also been true with cases of dementia præcox, patients being admitted to the hospital very shortly after their enlistment.

There have been handled a number of imbeciles, several of quite a low grade of intelligence, and some morons, most of whom came to the attention of medical officers through the difficulties they got into either through their inability to perform their duties or through infractions of discipline which resulted in their becoming general court-martial prisoners.

Advantage has been taken of the facilities available in the physiotherapy department in the treatment of cases and considerable assistance has been obtained from the "occupation aids" attached to the hospital.

An earnest effort has been made to raise the morale of the patients and personnel at this hospital. It has been found imperative that the mental depression resulting from prolonged hospital treatment for severe wounds and serious illness, as well as prolonged association with such patients, should be actively combated. Entertainments were given in the hospital biweekly during 1920 at which the navy yard orchestra rendered the required music. This orchestra also has played in the main hospital building each Wednesday afternoon.

The Red Cross organization at the hospital is actively engaged in welfare work. A ward in the E building has been assigned for Red Cross work. Patients are given instruction in toy manufacturing, headwork, etc.—Capt. C. H. T. LOWNDES, Medical Corps, United States Navy.

*Norfolk, Va.*—Professional activities at the United States Naval Hospital, Norfolk, assumed practically a prewar status during the calendar year 1920, during which time 2,404 patients were admitted. Of these, 1,948 were discharged to duty, 25 died, 169 were invalided from the service, 22 deserted, 186 were transferred to other institutions, and 254 were carried over to 1921 for further treatment.

In the early months of the year an epidemic of influenza prevailed in this locality. There were 146 cases, with 14 pneumonias and 1 death by January 31, and during the month of February 118 cases were admitted. On March 1 influenza cases totaled 264, with 36 resultant pneumonias and 10 deaths. By the last of February the epidemic had subsided.

Major operations performed totaled 200, tonsillectomies 100, and other operations in the eye, ear, nose, and throat department 50. There were 3,500 operations and treatments in the dental department, 956 X-ray plates were made, and 9,546 tests and examinations were made in the laboratory.

There were 21,927 rations issued during the year. The average number per month was 17,644, and the average cost per person per diem was \$1.13.

Numerous repairs to the roofing and plastering of new buildings have been necessary and the woodwork in these buildings has shrunk and is badly warped in places.

Ambulance boat *No. 2* was received and put in commission toward the end of the year. It facilitates transportation between the hospital and points in the harbor as well as affording a comfortable transport for patients from ships at Hampton Roads.

On December 1, 1920, another command was established on the hospital reservation, i. e., the Pharmacist's Mates School. This school occupies 10 new ward buildings, a commissary building, and temporarily, the Hospital Corps barracks.—Capt. L. W. SPRATLING, Medical Corps, United States Navy.

*Olongapo, P. I.*—The hospital ship *Repose* which has been used as a station hospital for many years was abandoned during the early part of December, 1920, and advertised for sale. An old abandoned marine barracks building, which had been used as a native school was taken over and all hospital equipment from the *Repose* installed in this building. This temporary building is old, decayed, and too far deteriorated to warrant expenditure of any funds for repairs or improvements except those of utmost necessity. This building will answer as a temporary hospital until the rainy season sets in, but its condition is so bad that it will not withstand a heavy typhoon.—Commander W. J. ZALESKY, Medical Corps, United States Navy.

*Parris Island, S. C.*—During the year a number of improvements to the grounds have been effected, such as filling, grading, and extending the sea walls 400 feet. The marine barracks continues to furnish the hospital with water. Since the new wells have been completed there has been a great improvement in the water supply. There has been no change in the system for protection against fire, excepting that an interior fire-alarm system was installed. There has been no new construction other than the extension of the mess hall. The cost of upkeep of the hospital buildings is high, due to war-time construction; however, repairs have been effected from time to time, and all of the structures are in good condition. The galley and mess halls are now sufficient in size and equipment. During the year a new dishwashing machine, dish tables, and steam tables have been installed. The quarters of the medical officers are fairly satisfactory, but there are no quarters for married chief pharmacists' mates. The quality of food obtained has been excellent

and the quantity abundant, but there is great lack of variety in this vicinity. There are on duty at this hospital 4 medical officers, 1 pharmacist, 5 nurses, 32 hospital corpsmen, and 19 civil employees. There have been 1,421 admissions and readmissions. The daily average of patients has been 83, with a total number of 29,265 sick days; 52 major surgical operations were performed. There were 8 deaths during the year. There has been a decrease in the admissions for malaria, 48 against 170 for the previous year, which is due to the increased activity of the marines in ridding Parris Island of mosquitoes.—Commander J. F. MURPHY, Medical Corps, United States Navy.

*Pearl Harbor, Hawaii.*—The hospital buildings are in good repair and in excellent sanitary condition. There are attached to the hospital 3 medical officers, 1 dental officer, 1 pharmacist, 3 nurses (female), 26 hospital corpsmen, and 29 civilian employees. At the beginning of the year 16 patients were in the hospital. During the year there have been 482 admissions and readmissions, 3 deaths, and 21 patients transferred to other institutions. At the end of the year 35 patients remained under treatment. Ninety surgical operations and 1,620 dental operations were performed. The laboratory made 1,832 tests and examinations.—Capt. C. P. KINDLEBERGER, Medical Corps, United States Navy.

*Pensacola, Fla.*—There were 44 patients carried over from last year, 201 were admitted, 584 were readmitted, 829 in all, of whom 519 were returned to duty, 221 to change of diagnosis, 5 died, 38 were invalided from the service, 5 deserted, 10 were transferred to other institutions, and 31 remained in the hospital at the end of the year. In addition to the above, 140 supernumeraries were treated during 1920, of which number 129 were discharged and 11 remained in the hospital January 1, 1921. The total number of patients treated was 969.

The surgical work consisted of 27 major operations, 48 minor operations, 84 operations on the eye, ear, nose, and throat, 8 lumbar punctures and pleural aspirations, 13 cystoscopic examinations, and 176 intravenous injections of arsphenamine. One death resulted from a bone inlay operation in a fracture of the femur. In the laboratory 1,783 tests and examinations were performed; 533 X-ray examinations were made.

The quantity and quality of the food served and its preparation has been very good. The ration for the year averaged \$1.12 per diem.—Capt. G. T. SMITH, Medical Corps, United States Navy.

*Portsmouth, N. H.*—On January 1, 1920, there were on duty at this hospital 6 medical officers, 1 chief pharmacist, 13 nurses, 25 hospital corpsmen, and 35 civilian employees. The number of patients was 66.

At the close of the year there were 34 patients under treatment. The number of medical officers was 5, and there were 1 pharmacist, 39 hospital corpsmen, and 6 nurses on duty. During the year there were admitted 817 patients. The total number of sick days for patients on the active list during the entire year was 20,493; 29 supernumeraries, with 703 sick days, brought up the figures of sick days to 21,196, giving a daily average of 58. There were 17 deaths.

The cases of communicable disease admitted numbered 167. Out of the total number of patients there were received 109 with diag-

nosis undetermined, 90 with gonococcus infection, 62 with tonsillitis, 54 with syphilis, 27 with hypertrophy of tonsil, 25 with hemorrhoids, 24 with fractures, 23 with rheumatism, 18 with appendicitis, and 16 with chancroid, these being the 10 groups coming first in numerical importance.

The laboratory made 4,438 tests, examinations, etc., during the year. The X-ray department reports 630 pictures taken. There were 79 operations performed in the surgical department. All members of the staff are being instructed in machine operation, positions and plate reading in the X-ray department, and the service will be rotated as each in turn becomes competent to take complete charge of the department.

The eye clinic reports 91 refractions and the throat clinic 51 tonsillectomies and adenoidectomies. Among the tonsillectomies reported, a number were performed on children of service personnel. General anesthesia was used in all but one case. All members of the staff are being instructed in the special work of this department and are participating in refractions and operations so that they may be sufficiently competent in this line of work on independent duty or be able to take over this work at the hospital should service conditions require it.

During the months of January and February influenza was epidemic at this station, with a total of 108 admissions and 12 deaths.

The special diets have been prepared in the main kitchen since April 16, 1920. Since that date the special diet kitchen has been practically out of commission. This procedure was made necessary by the lack of a trained dietitian and has proved fairly satisfactory, since the number of patients to be served has been relatively small compared with the preceding year.—Capt. W. H. BELL, Medical Corps, United States Navy.

*Puget Sound, Wash.*—The hospital reservation consists of 15 acres of rolling ground, all of which is cleared with the exception of 4 acres. An area around the cemetery and along the eastern side of the reservation was cleared of undergrowth and seeded during the year. Many flowering shrubs and bushes have been transplanted from near-by forests. These have been placed in groups and along banks, adding greatly to the beauty of the grounds. Necessary repairs and painting have been effected from time to time.

On December 4, 1920, the Red Cross building known as the "Convalescent Home," was turned over to the hospital. This building is located on the hospital reservation near the northwest corner of the grounds. The building of the new nurses' home is nearing completion and should be ready for occupancy sometime during the month of March.

The public works department has commenced work on a new incinerator that is to be twice the capacity of the old one, and a semi-indirect lighting system will soon be installed in the main hospital building to replace the direct system now in use.

The hospital is badly in need of seven sets of quarters of the bungalow type for medical officers; also metal fire escapes for the main building and a laundry.

The water supply is ample for all purposes and of a good quality. It comes from a large reservoir in the hills back of the town of Charleston. The supply of drinking water is frequently examined at

the hospital laboratory. The supply for fire fighting is ample, and under sufficient pressure at all times to carry the stream over the highest building on the reservation.

There are on duty at this hospital 6 medical officers, 1 dentist, 1 pharmacist, 9 female nurses, and 42 hospital corpsmen.

The total number of admissions and readmissions for the year was 1,515; there were 1,232 discharged to duty, 42 invalided from the service, and 4 died. The total number of sick days was 35,619.

The average daily cost of the ration was \$0.88. In the laboratory 4,569 tests and examinations were made, 143 surgical operations were performed, the X-ray exposures numbered 3,052, and the dental operations numbered 639.—Commander C. C. GRIEVE, Medical Corps, United States Navy.

*San Diego, Calif.*—The buildings and equipment of this hospital are of a temporary nature, incomplete, and far from satisfactory, yet the staff is making every effort to use the material available and to keep the institution functioning satisfactorily with its present equipment until the new hospital buildings are completed.

At the beginning of the year 14 medical officers, 1 dental officer, 2 pharmacists, 18 female nurses, and 56 hospital corpsmen were on duty at the hospital, and 193 patients were under treatment. During the year 3,993 patients were admitted or readmitted, representing a total of 97,205 sick days; 15 of these patients died. The surgical staff performed 248 major and 428 minor operations.—Capt. H. C. CUEL, Medical Corps, United States Navy.

*Washington, D. C.*—The permanent buildings of the hospital are in excellent condition. The usual amount of repair work, painting, etc., has been done during the year. In accordance with instructions from the bureau, all temporary wards as they became empty were closed. Equipment, beds, and furnishings were left in the wards and they are ready for use at any time. While the deterioration of the temporary buildings is comparatively rapid, their general condition is very good.

In view of the inflammable construction of the temporary buildings, great attention has been given to fire prevention. A complete new fire bill and drill was instituted early in the year. The battalion chief of the city fire department for this district was present at a drill and thoroughly familiarized himself with the fire hazards of this hospital.

All wet garbage and kitchen refuse is removed by the district authorities. All dry waste and refuse is burned and incumbustible material removed under contract.

The main kitchen is in excellent condition. A diswashing machine was installed in the officers' kitchen. The food supplies have been of excellent quality and well prepared. Frequent examinations of the milk to detect contamination have been made with negative results.

The main operating room and the operating room in connection with the eye clinic is in excellent condition. The surgical dressing room in the sick officers' quarters is now used daily for dressings and minor work which formerly was done in the patients' rooms or in the main operating room.

On duty at this hospital there are 16 medical officers, 3 pharmacists, 26 female nurses, 33 hospital corpsmen, and 90 civilian employees. During the year there were 1,267 ambulance calls.



The duties performed by the supply officer attached to this hospital are particularly numerous. They include all matters concerning the pay accounts of officers, nurses, and enlisted men on duty or undergoing treatment at the hospital, the Naval Dispensary, or St. Elizabeth's Hospital, and of all persons attached to the Naval Medical School, an average of 650 accounts; war risk insurance; family allotments; mileage and transportation of officers and men and their families; the issue of clothing and small stores and the preparation and payment of public bills. The average disbursements are \$60,000 monthly and the average issue of clothing and small stores amounts to \$2,000 quarterly. Owing to the many intricate questions arising concerning the accounts, transfers, discharges, and transportation of officers, nurses, and men on duty and under treatment, with particular reference to accounts of men mentally deficient, it is of great importance and to the best interest of the service as well as to the interest of the personnel to have the supply officer established at the hospital and under the immediate direction of the commanding officer of the hospital. The furnishing of clothing and small stores whenever necessary for the men on duty and the patients is also a great convenience.

The total admissions for the year was 2,044; of this number, 1,916 were for diseases and 128 for injuries. The influenza epidemic in the early part of the year accounted for 117 admissions. Fifty-eight cases of communicable disease were admitted, all of a mild type except a fatal one from scarlet fever. No war wounded remained in the hospital at the end of the year. During the year there were admitted 309 psychopathic patients. Of this number, 102 were transferred to St. Elizabeth's for treatment. A certain number of the patients sent to this hospital for final disposition are kept under treatment and finally discharged. This hospital acts as a clearing house for the other hospitals on this coast, hence the large number of psychopathic admissions.

There were 395 operations done during the year under general anesthesia and 80 under local anesthesia. Nineteen deaths occurred during the year. The X-ray department made 8,371 exposures.—Capt. M. S. ELLIOTT, Medical Corps, United States Navy.

*Yokohama, Japan.*—Influenza was present in epidemic form during the spring of the year. Cholera made its appearance in China and Chosen during the early summer, and some cases filtered through the quarantine into the southern ports of Japan. These cases were promptly recognized and isolated, and the disease was held in check at all times. Practically no cases occurred north of Kobe and the United States Navy was not affected by the disease. The Japanese deserve great credit for the manner in which they handle the cholera situation practically every year.

The general condition of all of the buildings on the hospital grounds is good. There have been a number of earthquakes during the year, but these structures have not been damaged. The grounds and buildings present an excellent appearance and are the subject of favorable comment. An isolation ward has been made out of the old marine barracks.

The X-ray plant is now in good working order. A new table and a stereopticon stand add much to the equipment of the room. It is now possible to do up-to-date work.

The tennis court is kept in excellent condition. Tennis rackets and balls have been purchased from the amusement fund, and the enlisted personnel have used the court a great deal and have been benefited physically.

The relation of the hospital personnel with the Japanese has been most friendly and cordial.—Capt. RAYMOND SPEAR, Medical Corps, United States Navy.

#### NAVY YARDS, STATIONS, RECEIVING SHIPS, ETC., AT HOME AND ABROAD.

*United States Naval Academy, Annapolis, Md.*—The following statistics show a portion of the work done by the Medical Department during the year: There were admitted to the sick list 2,568 patients, an average of 7 each day, representing a disability of 5,495 sick days, 1,220 of these being transferred to the naval hospital for further treatment. The number of visits of midshipmen to the sick quarters was 31,240, an average of 85 a day, the average number of midshipmen at the Naval Academy during the year being 2,058. The number of professional visits made by medical officers to officers' houses was 4,478; the number of patients visiting the dispensary was 4,413; the number of prescriptions filled was 10,647; and 2,503 physical examinations were made. The dental patients treated numbered 1,770. The health of midshipmen during the past year has been good. During January there was an increasing number of diseases of the respiratory tract, believed to be due to influenza. On February 3 this disease reached epidemic proportions, attaining its peak on February 10; declining until the 23d, after which there were only sporadic cases. As a result of complicating pneumonia, three midshipmen died at the naval hospital. This influenza epidemic was of the same character, but much milder in type than that of 1918. Preceding the infection among the midshipmen there was an acute outbreak on the U. S. S. *Cumberland* and the U. S. S. *Reina Mercedes*.

The annual physical examination of all midshipmen commenced on February 8 and ended on March 12, except for stragglers from the hospital. There was a reexamination in May of cases found unfit in order to determine the effects of rest and glasses. As the annual physical examination follows a long strain of study for the semiannual mental examination, such cases are at their worst. This year it was also decided to have a third examination of these eye cases after the summer cruise, at which time a large percentage of those found unfit were accepted. Of the 51 rejections, 41 were due to visual defects, the result of school myopia found at every university. After the period of rest it was found that 23 cases were able to meet the requirements of the services at 15/20.

A total of 248 midshipmen have been refracted with the following findings:

Myopic.....	27
Hypermetropic.....	21
Astigmatism:	
Myopic.....	112
Hyperopic.....	81
Anisometropic.....	7

Of this number 146 are required to wear their glasses constantly in the treatment of their myopia and astigmatism. The balance have been advised to wear glasses as much as possible in an effort to lessen strain and render their eyes more comfortable.

Myopia, unless of a high grade and progressive, tends to diminish with rest and advancing age, and it is considered that the eyes of a large number of midshipmen showing myopic conditions will, after leaving the academy, return to practically normal vision, and glasses may not have to be worn.

The final strength test of the graduating class was completed by the gymnasium medical officer on May 15. All members were found qualified in accordance with the approved recommendation of November 25, 1919, which permits a maximum defect of five muscle groups. It is hoped that with more emphasis placed on maintaining the physical condition, after once passing the strength test every one of the graduating class will be 100 per cent perfect. The following is the report of the above-mentioned tests:

*Percentage of average defects of first-class midshipmen.*

	Entrance test.	October, 1919.	April, 1920.
No physical defects.....	7.63	67.47	63.91
1 to 5 defects.....	12.84	22.49	18.08
6 to 10 defects.....	15.28	5.88	.00
11 to 15 defects.....	18.40	1.08	.00
Over 20 defects.....	33.00	.34	.00

*Average strength of first-class midshipmen.*

	Pounds.	Gain.
On entrance.....	137.4	.....
October, 1919.....	146.5	9.0
April, 1920.....	148.8	1.9

April, 1920:

Strongest man, strength total.....	7,175
Weakest man, strength total.....	4,255
Heaviest man.....	pounds.. 196
Lightest man.....	do.... 114

A new chlorinating apparatus has been installed in the swimming pool at the gymnasium, and since its installation specimens of water from the pool have been sent to the laboratory of the United States Naval Medical School for bacteriological analysis, with the following results:

Date, 1920.	Number of days used.	Bacteria per c. c.	Gas.
Aug. 13.....	4	0	Absent.
Aug. 16.....	7	0	Do.
Aug. 23.....	14	0	Do.
Aug. 27.....	19	4	Present in 4 c. c.

—Capt. D. N. CARPENTER, Medical Corps, United States Navy.

*Navy yard, Boston, Mass.*—The health of the naval personnel and civilian employees attached to this station has been excellent. The naval personnel has averaged about 402 and the civil employees 6,008 in number.

The total number of sick days among the naval personnel, including marines, for the year 1920, was 986, of which 913 were for diseases and 73 for injuries.

Most of the yard buildings are old, poorly ventilated, and do not admit sufficient daylight as do buildings of modern construction. The ventilation of the smithy and chain shops is especially defective and several cases of bronchitis have occurred in these shops as a result of the accumulation of fuel gases containing a large percentage of sulphur.

There were treated at the dispensary 6,635 accident cases, which number includes 1,830 foreign bodies in the eyes, a large number in spite of the suggestions made in regard to safety devices in the shops.—Capt. G. F. FREEMAN, Medical Corps, United States Navy.

*Navy yard, Cavite, P. I.*—The health of the station has been exceptional. No contagious diseases have developed, and the venereal situation shows a marked improvement, there being few admissions for venereal disease on this station or on board the U. S. S. *Genesee* and the U. S. S. *Piscataqua*. All public houses of prostitution have been closed in Cavite and San Roque, and there has been a decided effort on the part of the trades people of these towns to eliminate prostitution and general insanitary conditions.

There has been some scarcity in the water supply, but recently a new well has been drilled in the San Felipe inclosure and water from this well has been found to be satisfactory both chemically and bacteriologically. A recent examination of water from the old well demonstrated a larger amount of chlorides than was deemed advisable, and repairs are at present under way which it is believed will remedy this defect. With the two wells in operation it is believed that the yard will not suffer the inconveniences of an inadequate water supply.—Commander E. V. VALZ, Medical Corps, United States Navy.

*Naval air station and submarine base, Coco Solo, Canal Zone.*—The general health of the personnel has been good, with the exception of disability due to malaria. This infection must be expected, due to a large swamp immediately adjacent to the station. A special appropriation enables, for the time being, the employment of nine laborers and three mosquito catchers in fighting the malaria situation. Constant work is necessary to clear the land on the station proper, but conditions will never be satisfactory until the swamp adjacent to the station is filled. The laborers are engaged in clearing away vegetation, oiling accumulations of water, keeping screening intact, and catching mosquitoes. One hospital corpsman is detailed exclusively to superintend these operations.—Lieut. W. S. LEAVENWORTH, Medical Corps, United States Navy.

*Naval training station, Great Lakes, Ill.*<sup>1</sup>—An epidemic of influenza broke out on January 12, 1920, with the admission of 170 cases to the sick list. It subsided about February 20. There were about 1,600

<sup>1</sup> Much interesting data concerning epidemiological features on this station has already been published in Notes on Preventive Medicine during the year, therefore no further comment will be made in this report.

cases admitted, of which number about 1,100 were sent to the hospital. One hundred and fifty cases of broncho-pneumonia developed and of these 65 died.—Capt. C. S. BUTLER, Medical Corps, United States Navy.

*Naval station, Guam, Ladrone Islands.*—The hospital buildings are in good condition, with the exception of the galley, which is entirely too small for the present needs. The water supply is usually plentiful and of good quality. During the dry season, however, it is necessary to be conservative in its use, and it requires constant supervision to prevent contamination. Ample provisions have been made in case of fire and for drainage and sewerage.

This is the only hospital on the island, and the medical officers and nurses attached to it attend the sick of the native population, as well as of the naval and marine personnel. A new house for the Navy nurses has been recently completed and occupied.

In connection with the hospital is a school for native nurses. There are at present 13 native women taking a course of instruction, which is largely under the supervision of the chief nurse. The progress made by them is very slow, due largely to a low degree of mentality. The first principles of nursing are only acquired by constant and long-continued repetitions by the entire staff of instructors. However, a few have acquired a fair degree of efficiency and have become very useful about the wards, especially among the native female patients and the native children, and several have become fairly proficient midwives.

A laundry building has been completed and recently placed in commission. It is equipped with one 80-gallon washing machine, one centrifugal extractor, one mangle, and a drying room.

On a hill overlooking the town of Agana, and a half mile from the naval hospital, is the tuberculosis building, constructed of wood on the pavilion plan. It consists of two wards, with a kitchen between, each accommodating 20 patients, one being used for men, the other for women.

There were 527 patients admitted to the naval hospital during the year from the Navy and insular forces, representing 4,715 sick days. There was 1 death. The major operations performed numbered 40. There were admitted 1,326 natives, of whom 92 died. The number of operations performed upon natives was 78; the number of patients treated at the native clinic was 1,429, and at the dispensaries located in distant parts of the island there were 17,611 patients treated. In the laboratory there were 7,187 examinations and tests made.—Commander A. H. ROBNETT, Medical Corps, United States Navy.

*Naval station, Guantanamo Bay, Cuba.*—The general health of the station during the past year has been excellent. There were 683 admissions to the dispensary, with a total of 3,876 sick days. This includes all admissions from the naval and Marine Corps personnel for the entire station, from submarine chasers from Haiti and Santo Domingo undergoing repairs, and from ships en route to other ports making short visits at this station. There were 20 major operations and 54 minor operations performed on the naval personnel, with nearly as large a number on civil employees.

The following cases of communicable disease occurred during the year: Mumps, 14; chicken pox, 2; malaria, 72; German measles, 19; and dengue, 25. The mumps were undoubtedly contracted from the

Atlantic Fleet, from which we received 7 cases. The number of cases of malaria appears to be high for this station, but most of these admissions were from the crews of submarine chasers arriving from Haiti and Santo Domingo. The dengue probably had its origin from the same source.—Commander M. A. STUART, Medical Corps, United States Navy.

*Naval operating base, Hampton Roads, Va.*—During the year a vigorous campaign was instituted against mosquitoes, flies, and rodents with gratifying results.

In the laboratory 7,382 examinations and tests were made. The medical supply depot on the station filled 319 requisitions during the year and received material for ships and stations placed out of commission or having excess equipment.

During the period of this report, 2,317 applicants for employment have been examined at the dispensary, and 355 were found to be physically unqualified; 1,298 civilian employees were vaccinated, 338 accident cases treated, and 119 men were transferred to the hospital for further treatment.

The health of the personnel of the naval training camp has been very good. During the year there were 6,550 admissions to the sick list, with 18,383 sick days; 3,512 patients were transferred to the hospital; and 512 invalided from the service. The daily average complement for the year was 5,314, the largest number on the station at one time being 12,285.—Capt. J. C. PRYOR, Medical Corps, United States Navy.

*Naval proving ground, Indian Head, Md.*—The proving ground presents a different problem from that usually found at the various navy yards and naval stations, primarily from the nature of the work carried on here, and also from the close affiliation with conditions pertaining to civil life. The main portion of the work comes under two heads, namely, the manufacture of smokeless powder and the proving or testing of various shells, armor, and powder. Both of these procedures are liable to produce grave injuries and great precaution and strict rules are essential to general safety. First-aid stations are maintained at certain points of vantage. During the year 934 accidents cases were treated at the dispensary.

The proving ground is situated on the banks of the Potomac River and comprises much low land subject to inundation by the river with resulting areas of swamp, making it necessary to carry on a constant campaign against mosquito breeding and malaria.—Lieut. Commander A. J. TOULON, Medical Corps, United States Navy.

*Naval station, Key West, Fla.*—From a hygienic point of view, the buildings on this station leave little to be desired. Mosquito eradication requires constant vigilance on the part of the Medical and Public Works Departments. Because of the presence of plague in the vicinity much attention has been given to the question of rat-proofing the buildings and the destruction of rats.

The average complement of the station for the year was 186, but the inclusion of the civilian employees and the families of officers and enlisted men brings the number of persons attended by the medical officer to 622. There were 107 original admissions to the sick list, resulting in 210 sick days. No deaths occurred during the year.—Lieut. Commander P. E. GARRISON, Medical Corps, United States Navy.

*United States Naval Training Station, Newport, R. I.*—During the year the average complement of officers and men attached to the station was 3,793. In addition to the above, 67 officers attached to the War College and 384 civilians attached to the station were given medical attention as needed. For 11½ months of the year the families of officers and enlisted men residing in Newport were attended by medical officers of this station.

The total number of recruits received was 10,120, all of whom received cowpox vaccinations, while 8,147 received three inoculations of typhoid prophylaxis. There have been 3,205 admissions to the sick list, resulting in 9,759 sick days.

The lowering of the standard for recruits, noted in last year's report, has made necessary the rejection of a very high proportion, either immediately after the recruit's arrival or during his period of training.

During the year a school has been maintained for the instruction of illiterate recruits. This school received all illiterates who showed a fair amount of native ability. The results have been far from satisfactory, and it would seem inadvisable to recruit illiterate men with the hope that they can be given educational development at the Government's expense.—Commander N. T. McLEAN, Medical Corps, United States Navy.

*Naval station, New Orleans, La.*—The general health of the personnel has been excellent. No epidemics have prevailed. Sporadic cases of bubonic plague, five in number, developed in the city of New Orleans during the first eight months of the year. None have been reported since September. In order to avoid the appearance of this disease at the naval station, measures were taken to eradicate rats and to make the buildings rat proof. During the first six months of the year 395 rats were captured and examined; no cases of rodent plague were found. A special appropriation of \$31,000 was allotted for rat proofing the station; approximately \$24,000 was expended for this purpose, but the entire work was uncompleted at the end of the fiscal year on account of labor difficulties. This work has been progressing since, and it is expected that the station will be rat proof in the near future.—Lieut. Commander W. H. SHORT, Medical Corps, United States Navy.

*Navy yard, New York, N. Y.*—There has been a decrease in the number of workmen employed in the yard during the year. The daily average number of employees was 11,402. Of the employees injured during the year, 216 required the use of the ambulance and 6,712 walked to the dispensary for first-aid treatment, among which were 1,623 eye cases. The method of handling the injured yard workmen has been improved during the year with a view to expeditious and efficient first-aid treatment. The dispensary equipment has been increased and a small operating room constructed adjacent to the dressing room in which patients requiring minor surgery may be treated immediately. This operating room is especially useful as the dressing room is often crowded with patients awaiting dressings.

Much attention has been given to the recording of data pertaining to injuries received by the yard employees. The system of recording and filing this data has been in use a year and is very satisfactory. Histories of injuries can be obtained for the entry of data required for claims for compensation with a minimum loss of time. The

compensation act of September 7, 1916, requires that a print of an X-ray examination upon the receipt of injury and upon discharge from treatment be forwarded with the medical history in all cases of fracture. The X-ray machine in the dental office is used for this purpose, and employees having suspected or apparent fractures are examined under the personal supervision of a medical officer attached to the dispensary, thus saving time, as, prior to this year, such patients were sent to the naval hospital for examination.—Capt. L. L. VON WEDEKIND, Medical Corps, United States Navy.

*Navy yard, Norfolk, Va.*—The general sanitary condition of the yard during the year has been good. Civil employees were incapacitated on account of injuries as follows: Three hundred and eighty-four in the industrial department, with a loss of 4,575 working days and 53 in the supply department with a loss of 639 working days. There were 5,942 employees treated for injuries not necessitating incapacity and 4,473 men were examined for employment in the yard of whom 218 were found to be physically disqualified.

Due to the fact that plague-infected rats had been discovered at several southern seaports during the past year, special efforts were made to rid the navy yard of rats. Over 100 traps were daily in use. Three men were detailed to look after them. Many rats were caught. Barium carbonate was freely used as a rat poison, with excellent results.

Mosquitoes continued to be very plentiful and extremely annoying during the spring, summer, and late fall. The petiolizing of suspicious places in the yard has been carried on, but the waste ground in Portsmouth, adjoining the navy yard on the west side, continues to be the principal breeding place.

The water supply used in this yard is believed to be excellent since the new water system has been installed in the city of Portsmouth. The yard has had the use of this improved system. No disease has occurred in this yard which could in any way be attributed to impure water.

The milk supply from the large dealers in this vicinity is fair. No milk is brought into the yard by a dealer except on a permit issued by the medical officer of the yard. From time to time samples of milk are examined chemically and bacteriologically and in this way the supply is fairly well protected.—Capt. E. J. Grow, Medical Corps, United States Navy.

*Naval station, Olongapo, P. I.*—The average complement for this station for the year 1920 was 294.79. Admissions to sick list, all causes, amounted to 39 per 1,000.

Among the naval personnel only sporadic cases of influenza, measles, mumps, and chicken pox have occurred. No cases of smallpox, cholera, or leprosy have developed among the native population. This is unusual, as these diseases are prevalent in these islands. During the year, the entire naval personnel, the civil employees, all native school children, and those natives from the near-by barrios who applied for it at the dispensary have been vaccinated.

The infant mortality is very high in the barrios, as the natives fail to grasp the rules and principles of infant feeding. Scabies, tropical ulcers, yaws, and various forms of parasitic dermatitis and intestinal parasitic diseases are common.



During the past year a regulation has been issued and approved, requiring the removal of all typhoid and contagious diseases to the native hospital. This can not but help reduce the development and spread of these diseases, especially typhoid, which disease is very common in this locality.

During the year there were 254 deaths and 404 births among the native population.—Commander W. J. ZALESKY, Medical Corps, United States Navy.

*Naval station, Pearl Harbor, Hawaii.*—During March and April mumps and measles were prevalent among drafts of men arriving from the United States on Army transports. Two cases of smallpox developed among a draft of marines received in February from Mare Island. In one case the contact had not been vaccinated since admission to the service, while the other case was evidently contracted at Mare Island. During February the influenza epidemic reached its height, over 30 cases developing during the month. During the whole period of the epidemic there was but one death. Typhoid is endemic in the city of Honolulu and will probably continue to exist there as long as the sewage disposal remains in its present condition. There were 256 inoculations of vaccine virus and 93 typhoid prophylaxis performed during the year.—Lieut. J. L. SCHWARTZ, Medical Corps, United States Navy.

*Naval air station, Pensacola, Fla.*—The general sanitary condition of the air station for the year 1920 has been excellent. The naval reservation covers an area of about 1,500 acres, of which area the navy yard occupies but a small portion. The land is low, sandy, and covered by timber and underbrush; there are numerous small ponds and marshes which are inlets from Pensacola Bay. Much progress has been made during the past year in clearing this land and draining the marshes. Approximately 10 miles of drainage ditches have been dug and oil drips of 5 gallons' capacity each placed in the marshes. As a result of these measures, breeding places for mosquitoes have almost entirely been eradicated. There were but five cases of malaria during the past year.

Most of the water for the station is pumped from three wells, approximately 150 feet deep, to a tank of 100,000 gallons' capacity, with an elevation of 150 feet, which supplies all buildings on the station. This water is unfit for drinking purposes on account of a large amount of iron salt which gives it an unpleasant taste and odor, the iron deposit being so heavy that it necessitates plumbing being constantly overhauled in order to clear the pipes. Rain water collected from a number of buildings is stored in large cisterns and is piped to the various quarters where it is used for drinking and cooking purposes.

Bubonic plague made its appearance in Pensacola in June, there being seven well-defined cases of the bubonic type. All precautionary measures were taken to protect the station personnel from the disease. Sanitary measures were immediately inaugurated in the near-by towns of Woolsey and Warrington; rat traps were distributed, and hundreds of rats caught and destroyed. None of the rats caught were infected with plague. Owing to the active rat-catching campaign, 9,000 rats were destroyed in Pensacola. The last case of human plague occurred on July 13 and the last case of rodent plague on July 25. There was a total of 20 rodent cases.

The buildings on the station have been made ratproof, and old, dilapidated wooden walks have been replaced by cement walks.—Commander P. T. DESSEZ, Medical Corps, United States Navy.

*Navy yard, Philadelphia, Pa.*—A new building for the yard dispensary is needed, as the structure now in use is inadequate for the purpose designed. Early in the year an antimosquito campaign was inaugurated with fair results. The work of filling in swampy areas and small pools and the oiling of larger collections of water was handicapped by lack of funds, but what has been accomplished will be of benefit in future years. Special attention has been given to the question of rat extermination in view of the presence of plague in the southern ports of the United States and in Central and South America, from which vessels frequently arrive at this yard.

In order to insure the delivery of proper foodstuffs to the yard, the medical officer made a careful inspection of the establishments of dealers supplying fresh provisions, paying particular attention to the ice cream, milk, pastry, and lunch vendors. The dealers were graded according to the navy scale of 4 for excellent, and permits to deal with the navy yard were granted to those dealers receiving a mark above 2.5.—Capt. M. K. JOHNSON, Medical Corps, United States Navy.

*Receiving ship, Philadelphia, Pa.*—The average yearly complement for 1920 was 1,515. During the year the general health of the personnel of the station has been excellent, with the exception of a mild outbreak of influenza early in the year.

The number of vaccinations with cowpox virus were 2,683, the number of "takes" 901. The number of persons receiving three inoculations of antityphoid vaccine was 2,588.

During the year there were 1,396 admissions and 70 readmissions to the sick list. There were transferred to the hospital 581 patients, 40 were invalided from the service, 2 died, 834 were discharged to duty, and 9 continued to next year.—Lieut. Commander M. W. BAKER, Medical Corps, United States Naval Reserve Force.

*Navy yard, Portsmouth, N. H.*—Most of the shops and buildings are of old construction, but in their location, arrangements, lighting, and other sanitary features compare very favorably with similar buildings of civilian plants.

A heavy gas that accumulates in the blacksmith shop, as a product of combustion of crude oil in the many furnaces, has been the source of some annoyance, and the maintenance of good ventilation in this shop has proved a difficult problem. During the year a number of large louvers were placed on the roof of the building, but owing to its height and the weight of the gas little improvement has resulted from this change. The installation of a large air duct near, or at, the floor level with intakes near the furnaces and an exhaust blower has been suggested as a remedy. This installation, however, presents some engineering difficulties and could be made only at considerable expense.

There were 221 admissions to the sick list; 7,659 civilian employees were treated; 751 applicants for employment were examined physically, and of these about 50 were rejected. The applications of all applicants for employment that are examined by civilian physicians are referred to the yard medical officer for physical rating. A

record is kept of all physical infirmities so that these defects may not easily be used as a basis for future claims for compensation.—Capt. G. L. ANGENTY, Medical Corps, United States Navy.

*Naval prison, Portsmouth, N. H.*—The sanitary conditions of the prison have been excellent. The decrease in the number of general court-martial prisoners has simplified the problem of providing adequate floor and air space for the men confined here. At present men are quartered only in places designed for use as quarters. There are 10 officers attached to the station, 39 enlisted men, 735 general court-martial prisoners.

The following is a résumé of the sick report for the past year:

Total number of admissions.....	287
Total number invalidated from the service.....	14
Total number transferred to other institutions.....	25
Total number of deaths.....	1
Total number of sick days.....	4,067

All prisoners are carefully examined at entrance and before they are sent out in working parties. As far as possible they are given the work they were performing in the service. This, together with the general school, the library, gymnasium, and the entertainments, can only have a beneficial effect on the physical and mental condition of the men.

A considerable number of psychiatric examinations and intelligence tests were made during a year, and as a result many prisoners are inviolated from the services and many others have their work and environment, as far as practicable, so arranged as to free them from sources of irritation.—Lieut. C. F. MCGILL, Medical Corps, United States Navy.

*Yard dispensary, navy yard, Puget Sound, Wash.*—The yard is in need of a new building for the yard dispensary. The building used at present is too small for the present needs and is poorly located, as it is hidden among the shops and is quite inaccessible to patients, and is difficult to keep clean because of its proximity to sources of dust. It would be costly to remodel this building satisfactorily, and plans for a new building, meeting the needs of the medical officer, have been submitted to the Bureau of Yards and Docks.

The total number of injuries treated during the year was 7,371, as against 15,022 in 1919. The large decrease in the number of accidents is credited to the discharge of the least efficient and the most careless of the employees when the yard force was reduced at the end of the war.—Lieut. Commander A. B. DAVIDSON, Medical Corps, United States Navy.

*Naval air station, San Diego, Calif.*—During the year the crew has been moved from the old buildings into the new permanent barracks, two in number, designated as barracks No. 1 and No. 2, which consists of eight dormitories, a mess hall and galley, auditorium, and various other small rooms now used for a barber shop, small stores, issuing rooms, and extra bedding storerooms. In general, these barracks are very satisfactory. Unfortunately, none of the inside rooms have any ventilation, except when the door is open. The material used for flooring is not at all adapted to the purpose, being a woodstone preparation with no binder of wire or other material, and not impervious to water. It has been found impossible to use

water on the floors without causing rapid deterioration. A sweeping compound is the only material found satisfactory for cleaning them, but from a sanitary standpoint its use can not be recommended. The toilet and shower-bath fittings, while elegant in appearance, were not sufficiently heavy for use, and the sprays for the shower baths were soon out of order. It has been found necessary to install plain and heavy piping to replace the original light nickeled parts. Considering the size of the crew, the present galley in barracks No. 1 is much too small and is too poorly lighted and ventilated for continued use. The student officers' quarters are of better design, and the galley in this building is better arranged. The administration building is of the same construction and from a sanitary standpoint is satisfactory.

The work of this station being the advancement of aviation and routine flying and training, the activities of the Medical Department are different in some respects from any other type of naval duty. The examinations of all officers assigned to actual flying is very thorough, as was shown by the rejection of a number of former officers who reported for temporary duty. Two medical officers are on duty during flying hours. Only one crash on this station resulted in loss of life.—Commander R. R. RICHARDSON, Medical Corps, United States Navy.

*Submarine base, San Pedro, Calif.*—The average complement for the past year has been 1,340, which number includes the average personnel of the base proper as well as of various ships attached. The percentage of sick has been 4.2. The percentage of mortality has been 2.2.

There have been no epidemics at the station during the year. Diphtheria occurred in the submarine school at one time. Three carriers were located and the infection subsided. The ships of the Pacific Fleet have had a number of cases of measles and mumps, some of which were transferred to the submarine base for isolation and treatment. In an endeavor to control the incidence of these diseases, a camp was established at the base for the detention of men reporting to the fleet from the training stations.

The number of original admissions to the sick list was 924, representing a disability of 11,923 sick days. The number of primary vaccinations with cowpox was 47, resulting in 34 "takes;" 1,371 revaccinations were given, with 327 "takes." Antityphoid prophylaxis was given to 1,372 persons.—Lieut. Commander R. I. LONGBAUGH, Medical Corps, United States Navy.

*Thirteenth naval district.*—At the Pacific Coast Torpedo Station Keyport, Wash., a new dispensary containing an 18-bed ward, a laboratory, an operating room and an office for the medical officer has been equipped. At the naval ammunition depot, Puget Sound, Wash., a modern first-aid station was established; and new sick quarters, having a capacity of eight beds, were installed in the marine barracks, Puget Sound.—Commander F. G. ARBKEN, Medical Corps, United States Navy.

*Navy Yard, Washington, D. C.*—The personnel of the medical department consists of 5 medical officers, 2 dentists, 1 pharmacist, 2 nurses (female), and 15 hospital corpsmen. During the year 25,921 cases have received attention from the medical officers and 3,280 from the dental officers. The average number of civilian employees

at the yard was 8,335; of these, 644 were found sufficiently ill to be relieved from work and sent home, 2,677 were given treatment and returned to work, and 42 were sent to the United States Public Health Service Hospital. The separate injuries treated numbered 4,687, of which 310 involved disability amounting to 4,832 working days. There were no deaths among the civilian employees in the yard resulting from injuries due to yard employment.—Lieut. Commander C. J. HOLEMAN, Medical Corps, United States Navy.

#### MARINE STATIONS, BRIGADES, AND BARRACKS.

*Fifteenth Regiment, Second Brigade, United States Marine Corps, San Pedro de Macoris, Dominican Republic.*—The field hospital is located on the water front of the town of San Pedro de Macoris, Dominican Republic. The building is a 1-story, screened, wooden structure. It consists of nine rooms, designated as follows: Office, Ward I, Ward II, venereal ward, operating room, dispensary, dressing room, toilet, and the laboratory. There are porches running nearly the entire length of the front (west) side and the south side.

Four companies of the Fifteenth Regiment are on outpost duty as follows:

One hundred and eightieth Company, headquarters at Seibo, and detachments at Higüey and El Pintado.

One hundred and eighty-seventh Company, headquarters at La Romana, and detachments at Guaymate and Arroya Luca.

One hundred and Fourteenth Company, headquarters at Hato Mayor, and detachments at Errancho, Dos Rios, Magarin, and Monchado.

Seventieth Company, headquarters at Guayabo Dulce, and detachments at Canadelagua, Morequecho, and Chicharon.

A medical officer is stationed at each of the company headquarters and has the supervision of the health and sanitation of the outposts of that company. A hospital corpsman is stationed at each outpost under the direct supervision of the company medical officer. A hospital corpsman at an outpost can, however, transfer a patient directly to the field hospital in an emergency when such a procedure is indicated.

Every post is supplied with medical equipment considered sufficient for its requirements.

The water supply of the outposts comes from the nearest river. It is in all cases adequate, and when the rainfall is great the water is potable. During the dry months the rivers are heavily contaminated, and dysentery and diarrhea are very prevalent among the natives and the rate increases among the marines. The condition is combated successfully by either boiling or chlorinating all water used. Some cases do occur which can be accounted for by the fact that men on liberty and on expeditions in the field drink water from unauthorized sources.

Garbage is disposed of by burying, burning, or selling to natives as food for pigs.

The latrines at San Pedro de Macoris overhang the sea. Those at La Romana have modern flushing closets. All other latrines are of the camp pit variety, and are filled, and new ones made as necessary.

During 1920, no man in the district has died of disease.—Lieut. Commander W. H. MICHAEL, Medical Corps, United States Navy.

*Fourth Regiment, United States Marine Corps, Santo Domingo, Dominican Republic.*—The Fourth Regiment is one of the three regiments comprising the second brigade now stationed in Santo Domingo. It occupies the section known as the Northern District of the Republic, and is divided into seven units, called marine barracks, each located in the principal town of the seven Provinces of the Northern District. In addition to the seven marine barracks there are at Santiago de los Caballeros, the regimental headquarters, the quartermaster department and the regimental field hospital.

The regiment has a strength of 43 officers and 646 men. There were during the year 676 original admissions to the sick list and 3 deaths from accidents. Malaria, venereal disease, and lymphadenitis (non-venereal) have caused together a total of 3,893 sick days, or over one-half of the disability due to disease. Three cases of pappapacci fever and a case of anthrax, due to an infected shaving brush, were encountered during the year.

Preventive measures against malaria and venereal diseases have been carried on actively throughout the entire year. When it is considered that malaria is not at all uncommon in the civil population and that Santo Domingo is known to be a country highly infected with venereal disease, the incidence rates for these two diseases in the Fourth Regiment can not be considered unduly high. Against venereal disease there has been employed weekly inspections and lectures, the exhibition of a special movie film, posting of the official warning notices, conscientious enforcement of venereal prophylaxis, active welfare propaganda, athletics, moving pictures, entertainments, and an excellent routine of daily physical work and military training. Against malaria there have been employed the following measures: Elimination of mosquito larvæ from the vicinity by ditching and other means; compulsory use of mosquito nets; early detection and isolation of carriers; the occasional use of quinine prophylaxis over short periods of duty involving special hazard; malarial survey of all prisoners (civil) under guard by Marine Corps personnel, with the detection and elimination of carriers and the assistance to civil authorities in mosquito control.

At each of the seven marine barracks of this regiment there is a sick bay and dispensary and in Santiago the field hospital. Each sick bay and dispensary is located close to the living quarters of the men, and each provides for the storing of medical and surgical supplies and the sheltering of from two to six bed patients and two hospital corpsmen; each has provision for the treatment of venereal disease and for administration of prophylaxis.

The field hospital is situated on the outskirts of the city of Santiago. It consists of a group of eight buildings in addition to a large bath house and toilet connected by a covered porch with three Munson hospital tents for isolation, five wall tents for hospital corps quarters, and an outhouse used by the mess attendants as a bath. The site is high, perfectly drained, attractive, and accessible, yet sufficiently isolated to meet hospital needs. An excellent roadway ends at the hospital, with a branch for delivery and receipt of heavy material, and a branch for light vehicles. Six of the buildings are of the portable type furnished by the Bureau of Medicine and Surgery. The remainder of the structures was furnished by the Marine Corps.

Operating done at the field hospital during the year was as follows: Major operations, 14; minor operations, 33.—Lieut. Commander G. F. COTTLE, Medical Corps, United States Navy.

*Second Provisional Brigade, United States Marine Corps, Field Hospital, Santo Domingo City, Dominican Republic.*—In July, 1920, a beautiful plot of ground of about 10 acres in extent was acquired by the brigade commander for the purpose of building a new camp for the Third Regiment, United States Marine Corps, and also as a site for a new field hospital. This plot of ground is situated to the westward and just outside of the city proper. On the south it faces the sea, and the northern side is conveniently near various avenues leading into the city. The brigade commander has assigned six buildings, each 98 by 20 feet, for use by the field hospital, which will be located on about an acre of ground situated in the northwest corner of the plot. Five of these buildings are placed in a row, running east and west. There is a space of 15 feet between each building. On the eastern side of these buildings there will be a continuous covered porch 8 feet wide, which will face the parade ground. The sixth building is detached from the main hospital and will be used as a barracks for the Hospital Corps men and for the machine shop and Delco lighting plant. A small room is also set aside for the civilian laborers. The buildings will be numbered consecutively. Building No. 1 will be used for general offices, including those of the commanding officer and executive officer, the dental office, and dispensary. In building No. 2 will be quarters for sick officers, the eye, ear, nose, and throat room, the X-ray room, and the medical storeroom. Building No. 3 will contain the operating room, laboratory, and surgical ward, with a capacity of 12 beds. Building No. 4 will contain a medical ward having a capacity of 12 beds, a venereal ward with 10 beds, and an isolation ward with 4 beds. Building No. 5 will be used for the mess hall, galley, and storerooms.

The water supply for the new field hospital will be obtained from wells and cisterns. The well water will be used for flushing and bathing and the cistern water for cooking and drinking purposes only. Work was begun on the new field hospital in September, but, owing to lack of material and other unavoidable factors, there has been considerable delay in erecting the buildings.

Pending the completion of the new buildings the field hospital has occupied an old structure in the city of San Domingo. The service has been active, 1,175 patients being admitted during the year. Disability from disease (other than venereal diseases) reached a total of 6,904 sick days; from venereal disease there were 1,685 sick days, and from injury 977 sick days.—Commander R. E. LEDBETTER, Medical Corps, United States Navy.

*Third Regiment, United States Marine Corps, Santo Domingo City, Dominican Republic.*—All members of the regiment are required to sleep under mosquito nets, and at night sentries make inspections to see that this is done and to see that all men have their nets properly adjusted. These inspections by the sentries are supplemented at frequent intervals by inspections made by the medical officer. In spite of these measures malaria is the most prevalent disease among the personnel, having as high a morbidity rate as all other diseases combined. The disease is of the benign tertian type. Patients with

malaria seldom require more than seven days hospital treatment with the initial attack; there is, however, a marked tendency to recurrent attacks. On occasions dengue assumes epidemic proportions. It is considered that this prevalence of mosquito-borne diseases is due in part to the fact that at night sentries are exposed to the mosquitoes and because men sleeping under nets expose themselves to mosquitoes by laying their arms and legs against the nets.—Lieut. W. E. STONE, Medical Corps, United States Navy.

*First Provisional Brigade, United States Marine Corps, Port au Prince, Haiti.*—There were 1,290 original admissions for malaria during the year. On the basis of an average complement of 1,420, this gives an annual rate per thousand of 908.45. The admissions for malaria were 56 per cent of the total admissions for all causes and 59 per cent of the admissions for diseases. The total sick days for malaria were 10,990, which means that there was an average of 30 men on the sick list with this disease during the entire year, or, in other words, 2 per cent of the entire brigade were ineffective because of malaria. There were 2 deaths from malaria and 2 from hemoglobinuric fever.

An epidemic of smallpox began in Port au Prince about October 1, 1920. The original case introduced into Haiti was traced to a family coming from Jamaica via Cuba to Aux Cayes, Haiti. As a rule, the disease spread slowly. At first it was mild in type and for a considerable time no deaths occurred. It finally spread throughout the entire island. In Port au Prince it increased rapidly and became virulent. Up to December 31, 1920, 1,488 cases had been admitted to the city general hospital, with a death rate of 3 per cent. Reliable statistics for the city of Port au Prince are not available, but from close observation it is estimated that at least 7,000 cases have occurred. Upon the outbreak of this epidemic the brigade surgeon at once notified the Bureau of Medicine and Surgery and took all necessary steps for the protection of the personnel of the brigade. The entire brigade has been vaccinated five times and the troops in and near Port au Prince six times. That the measures have been successful to the highest degree is manifested by the fact that so far only two cases of smallpox have appeared in the brigade. Neither of these men, though repeatedly vaccinated during their lifetime, have ever had a successful "take."—Commander F. E. SELLERS, Medical Corps, United States Navy.

*Marine detachment, Camaguey, Cuba.*—The camp is located to the northeast of, and about 1 mile from, the city of Camaguey, Cuba.

The average complement for the year 1920 was 197 officers and men. There are at present 1 medical officer, 1 dental officer, 1 pharmacist, and 5 hospital corpsmen on duty with this detachment.

The water supply is taken from a well in camp, which furnishes not only good water, but an inexhaustible supply. The food has been, on a whole, very satisfactory in quality and quantity. Fresh vegetables are, as a rule, hard to obtain, as the vegetable seasons are short. Fresh-slaughtered beef is the chief meat. Fowls of all kinds are very expensive.

During the year 168 patients were admitted to the field hospital attached to the camp. In September, 1920, new buildings for this hospital were completed and are now occupied.—Commander F. L. BENTON, Medical Corps, United States Navy.



*Sick quarters, marine barracks, Quantico, Va.*—Much attention has been given to mosquito prevention. Large areas of swampy land have been drained, filled, or oiled during the year. The average complement for the year was 2,119. The total number of original admissions to the sick list was 1,062, giving an annual admission rate per 1,000 of 501.22, and resulting in 2,880 sick days. Seven deaths occurred. The total number of cowpox vaccinations was 1,145, while 539 men were immunized against typhoid fever.—Lieutenant Commander L. L. PRATT, Medical Corps, United States Navy.

*Marine barracks, Parris Island, S. C.*—The average complement for the year was 2,585, the highest average complement for any one month being 3,447 for December and the lowest being 2,087 for January. There were 1,087 admissions to the sick list for disease, with 137 readmissions; there were 87 admissions for injuries, with 5 readmissions. The percentage of admissions and readmissions for all causes was 0.437.

A total of 8,215 vaccinations with cowpox vaccine and 6,655 immunizations with typhoid prophylactic were given.

The flying field, established July, 1919, has been very active during the greater portion of the year. Its chief mission has been the training of aviators in flying Navy DH 4 bombing planes. During the year four fatalities in connection with actual flying occurred. Three of these were the result of one accident, the actual cause of which was not determined, death in each case being due to incineration. The fourth fatality was caused by a plane striking an electric wire and crashing while approaching the flying field, the death of the pilot in this instance being due to a fracture of the neck. A Ford truck, equipped with stretchers, first-aid apparatus, fire extinguishers, and instruments for extricating the occupants of wrecked planes, is provided for the use of the medical officer of the flying field, who is in attendance constantly when planes are in the air. Lieut. J. L. Manion, Medical Corps, United States Navy, the medical officer of the Marine Flying Field, has continued instruction in actual flying during the year and has progressed to the point of solo flying.

The location and climatic conditions of Parris Island renders the question of drainage one of considerable importance. During 1919 it was necessary to expend large quantities of oil in mosquito control. At that time plans were made looking toward better drainage, which has been accomplished by ditching, filling, and leveling.

Mumps, chicken pox, scarlet fever, and measles have occurred in recruit companies from time to time during the year.

On January 21 influenza appeared in epidemic form. The epidemic terminated in February, but scattered cases to the number of 20 developed during March. A total of 191 cases developed during the three months, and of this number 27 occurred in applicants for enlistment.—Lieut. Commander J. C. PARHAM, Medical Corps, United States Navy.

#### HEALTH OF THE NAVY.

The health conditions in the Navy for the calendar year 1920 were, in general, good. If it had not been for the high incidence of influenza in January and February, and the unusually high morbidity rates for communicable diseases during the last two months of the year, the final rate for the year would have been lower than that of the previous year.

The increased incidence of communicable diseases in November and December was not due to any neglect in the use of preventive measures by the Navy, but rather to its rapid expansion during that period and the three months immediately preceding it. From August 1 to December 31, 44,779 men were enlisted in the Navy and 8,453 in the Marine Corps, an average of over 10,000 per month for the two branches of the service. Fortunately, as an aftermath of the war, there were sufficient barracks at all training stations and Marine recruit depots to properly house the men. All necessary preventive measures were immediately put into operation after the recruit drive commenced in an endeavor to prevent a repetition of the high morbidity rates for communicable diseases which occurred during the Navy's rapid expansion in 1917 and 1918. Had the recruits enlisted during the past year been of proper physical and mental caliber, it is believed that the rates for communicable diseases would not have reached such a high peak in the winter of 1920 and 1921.

In order to recruit the Navy to its full quota, men of inferior physical and oftentimes of doubtful mental capacity were accepted. Such men as a result of change in environment and living under military discipline are poor risks from the standpoint of the health of the Navy. It has been the experience in all armies and navies that under conditions as described above that the incidence of disease increases. Men of poor physique soon become fatigued by their active military training, and men of poor mentality never learn to properly care for themselves. Two other important factors which aided in bringing about the above conditions were the extreme youth of the newly enlisted personnel, and the large number of men who were recruited from rural districts. The young adults, many of whom were mere boys, had never been away from home influences and consequently knew little about personal hygiene. This could not be taught in the short period they were at the training station. The boys from rural districts in most instances had never been exposed to the various communicable diseases common to childhood. Therefore, as soon as such diseases as mumps and measles appeared at a training station fertile ground was found for their rapid propagation.

The epidemic of influenza was described in detail in last year's report, but the statistical data and final morbidity and mortality rates for the calendar year 1920 appear in this report.

#### THE MORBIDITY RATES OF THE NAVY.

The admission rate for all causes, entire Navy, was 778.99 per 1,000, as compared with 676.02 per 1,000 calendar year 1919 and a mean rate of 463.80 for the five-year period immediately preceding the war. Chart No. 1 shows admissions by months for all causes. As shown above, this high rate was due to influenza and the induction of large numbers of men into the Navy during the last five months of the year.

For communicable diseases, exclusive of influenza, tonsillitis, minor infections of the upper respiratory tract, and the venereal diseases, the admission rate was 81.78 as compared with 61.73 for 1919. Chart No. 2 shows admissions by months.

CHART No. 1.

U. S. NAVY: ANNUAL ADMISSION RATES PER 1,000, BY MONTHS, ALL CAUSES, ENTIRE NAVY AND SHORE STATIONS IN THE UNITED STATES, YEAR 1920.

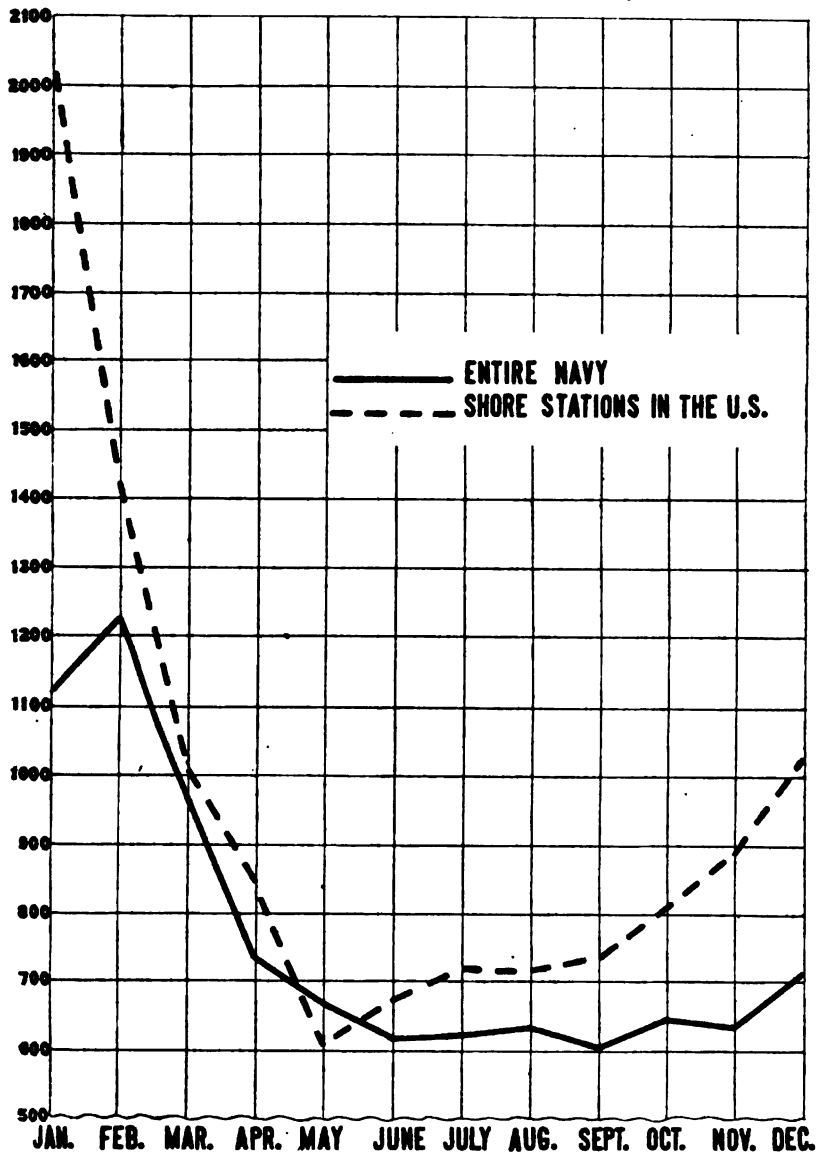
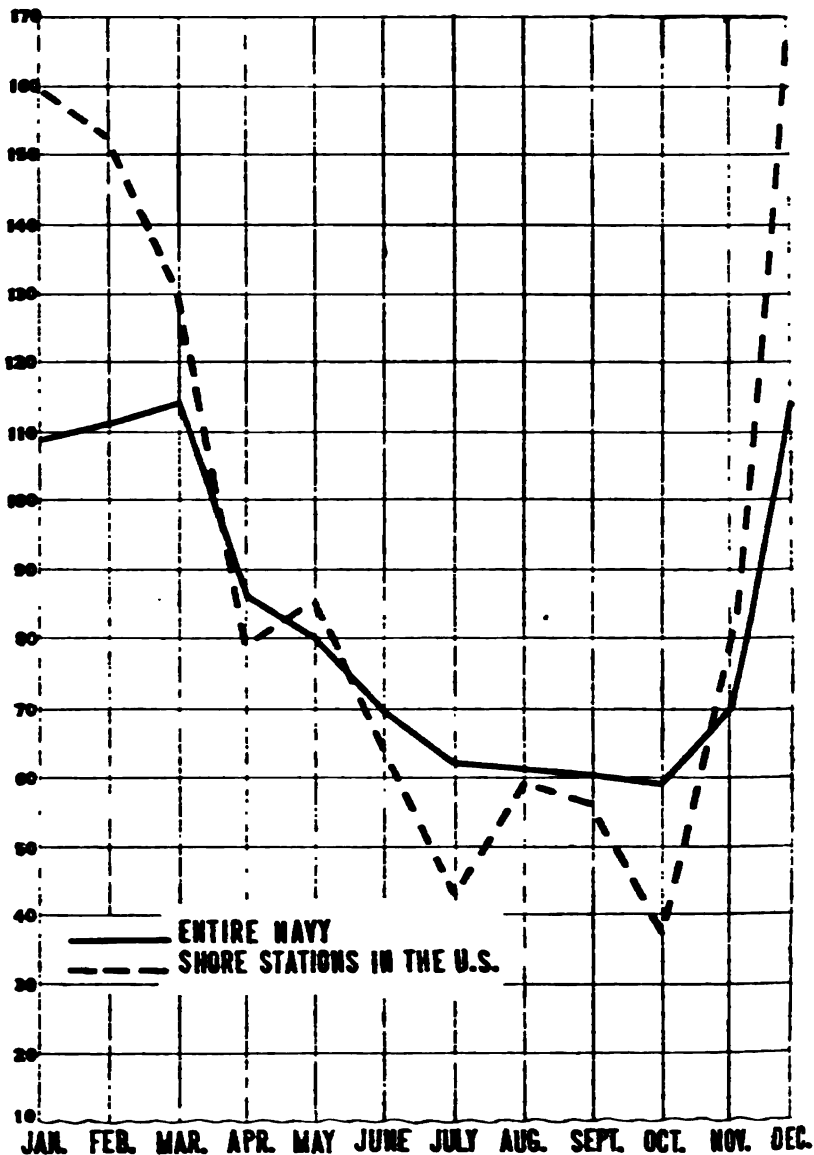


CHART No. 2.

U. S. NAVY: ANNUAL ADMISSION RATES PER 1,000, BY MONTHS, COMMUNICABLE DISEASES, EXCLUSIVE OF INFLUENZA AND VENEREAL DISEASE, ENTIRE NAVY AND SHORE STATIONS IN THE UNITED STATES, YEAR 1920.



For the forces afloat the admission rate for all causes was 492.30 per 1,000, as compared with 915.11 for shore stations in the United States.

*Morbidity rates for the forces afloat, calendar year 1920.*

	Minimum rate.		Median rate.		Mean rate. <sup>1</sup>		Maximum rate.	
	1919	1920	1919	1920	1919	1920	1919	1920
<b>ALL CAUSES—DISEASES AND INJURIES.</b>								
All ships.....			513.84	471.26	536.18	526.67	2,135.13	2,772.72
Battleships and cruisers.....	312.28	294.40	646.91	601.06	646.31	692.44	1,396.40	1,565.35
Destroyer force.....			390.96	303.14	440.26	430.73	1,165.86	1,475.86
Submarine force.....	256.61	223.70	436.31	550.00	494.14	558.04	918.26	821.26
Gunboats and small cruisers.....	256.00	164.71	580.45	730.29	706.81	762.06	2,135.13	1,396.29
Miscellaneous vessels.....	35.92		530.97	561.59	558.08	597.38	1,230.07	2,772.72
<b>DISEASES ONLY.</b>								
All ships.....			439.05	414.89	457.49	462.89	2,126.63	2,772.72
Battleships and cruisers.....	288.07	248.00	627.58	608.11	571.12	624.29	1,440.70	1,810.95
Destroyer force.....			357.99	309.71	386.55	382.89	1,097.80	1,383.15
Submarine force.....	246.08	300.58	385.88	494.15	422.62	505.24	762.70	745.84
Gunboats and small cruisers.....	200.00	164.71	506.88	652.80	646.88	697.79	2,126.63	1,383.07
Miscellaneous vessels.....	32.30		385.00	491.62	463.34	517.21	1,139.43	2,772.72
<b>ACCIDENTS AND INJURIES.</b>								
All ships.....			50.10	49.99	62.05	60.90	883.61	810.81
Battleships and cruisers.....		37.60	62.78	59.26	67.26	68.29	198.45	254.41
Destroyer force.....	132.85		154.54	38.59	45.88	54.22	712.47	600.00
Submarine force.....	7.93	23.20	41.95	54.80	70.79	83.77	178.12	72.46
Gunboats and small cruisers.....			45.82	48.89	61.19	62.32	125.00	187.09
Miscellaneous vessels.....			59.21	58.02	67.62	72.72	883.61	810.81
<b>DROWNING.</b>								
All ships.....					1.18	1.95	29.28	256.30
Battleships and cruisers.....					.46	.46	3.96	7.42
Destroyer force.....					1.49	2.63	29.28	256.30
Submarine force.....					.80		2.64	
Gunboats and small cruisers.....					2.88	1.63	20.83	13.83
Miscellaneous vessels.....					.85	6.34	18.87	81.63
<b>COMMUNICABLE DISEASES.<sup>2</sup></b>								
All ships.....			20.25	10.81	24.69	23.69	1,404.82	269.19
Battleships and cruisers.....		3.20	20.45	34.77	26.33	42.65	83.32	143.08
Destroyer force.....					10.86	17.63	180.32	369.19
Submarine force.....	2.65	7.69	11.09	9.66	10.37	9.61	16.71	11.56
Gunboats and small cruisers.....			18.89	26.81	97.41	61.16	1,404.82	334.56
Miscellaneous vessels.....			14.93	12.09	30.66	22.98	255.98	250.00
<b>INFLUENZA.</b>								
All ships.....			18.51	10.10	33.20	31.00	316.93	307.00
Battleships and cruisers.....			28.61	38.23	51.45	51.21	316.93	230.83
Destroyer force.....					27.67	22.78	212.77	307.00
Submarine force.....	18.33	23.12	46.89	66.50	49.82	79.62	101.65	169.08
Gunboats and small cruisers.....			41.66	39.81	54.38	48.50	177.77	164.71
Miscellaneous vessels.....			23.93	14.39	46.06	33.72	260.00	250.00
<b>VENEREAL DISEASES.</b>								
All ships.....			127.26	111.11	158.50	157.03	712.47	924.24
Battleships and cruisers.....	54.30	42.68	117.29	100.92	146.42	136.23	463.75	633.66
Destroyer force.....			133.85	90.42	157.41	142.24	712.47	885.22
Submarine force.....	39.93	140.00	100.92	169.23	88.00	162.74	114.58	188.06
Gunboats and small cruisers.....	69.15		174.16	276.60	296.84	259.79	453.33	650.61
Miscellaneous vessels.....			132.79	124.22	161.75	169.34	596.49	924.24
<b>CHANCROID INFECTION.</b>								
All ships.....			30.10	19.60	49.60	45.55	389.62	313.13
Battleships and cruisers.....	2.78		40.62	18.52	51.02	41.16	173.38	208.95
Destroyer force.....			25.00	13.07	48.44	44.10	383.62	313.13
Submarine force.....	5.00	9.66	11.22	53.20	12.94	41.88	23.80	69.23
Gunboats and small cruisers.....	2.30		56.18	91.54	74.26	95.87	208.33	262.81
Miscellaneous vessels.....			28.14	25.11	46.91	40.86	223.33	224.28

<sup>1</sup> Average of the rates.

<sup>2</sup> This rate was for the U. S. S. Napa, the only ship of the "Miscellaneous" class which had a rate for accidents and injuries above 202.

<sup>3</sup> Cerebrospinal fever (cerebrospinal meningitis, meningococcus, pneumococcus, streptococcus, etc.); chickenpox; diphtheria; malaria; measles; mumps; pneumonia, primary broncho; pneumonia, lobar; scarlet fever; smallpox; tuberculosis, all forms.

*Morbidity rates for the forces afloat, calendar year 1920—Continued.*

	Minimum rate.		Median rate.		Mean rate.		Maximum rate.	
	1919	1920	1919	1920	1919	1920	1919	1920
<b>GONOCOCCUS INFECTION.</b>								
All ships.....			78.96	71.42	92.75	98.32	408.91	324.94
Battleships and cruisers.....	15.77	27.43	69.76	82.14	80.98	101.74	246.89	445.54
Destroyer force.....			81.30	57.13	94.81	89.37	408.91	532.89
Submarine force.....	28.66	79.80	68.35	109.83	64.07	115.45	84.21	189.72
Gunboats and small cruisers.....	42.17		110.82	127.35	115.89	128.68	263.32	320.99
Miscellaneous vessels.....			81.93	85.34	95.13	114.75	324.49	324.94
<b>SYPHILIS.</b>								
All ships.....			8.61	1.82	14.09	12.43	104.16	121.21
Battleships and cruisers.....	0.95		12.08	10.27	14.60	12.81	85.10	73.19
Destroyer force.....					11.20	12.09	83.71	121.21
Submarine force.....	2.64		9.40	4.83	10.98	5.41	28.85	9.98
Gunboats and small cruisers.....			18.85	21.18	26.97	29.05	104.16	78.92
Miscellaneous vessels.....			9.40	3.49	15.49	13.53	70.16	102.79

The admission rate for all causes for the forces afloat was 492.30 per 1,000 per annum in 1920, as compared with 536.18 in 1919. In comparing the tables above it will be noted that the rates for submarines, in general, are somewhat higher than those for the past year.

**DEATH RATES OF THE NAVY.**

The crude death rate of the Navy, all causes, was 7.10, as compared with 5.90 for the calendar year 1919, and a mean death rate of 4.29 for the five-year period immediately preceding the war. The death rate from disease only was 5.06, as compared with the mean rate of 2.36, 1912 to 1916, inclusive. Chart No. 3 shows death rates for all causes and disease only from 1850.

If it had not been for influenza, which caused a death rate of 1.97 per thousand per annum, the death rate for the entire Navy would have been 5.13, which is less than the death rate of 1919. The ratios of deaths due to communicable diseases are shown by Chart No. 4.

During the year 1920 there were 1,000 deaths, of which 713 were due to disease, 285 to accidents and injuries, and 2 to casualties in action. Of the 285 deaths due to accidents and injuries, 124 were due to drowning.

**PNEUMONIA.**

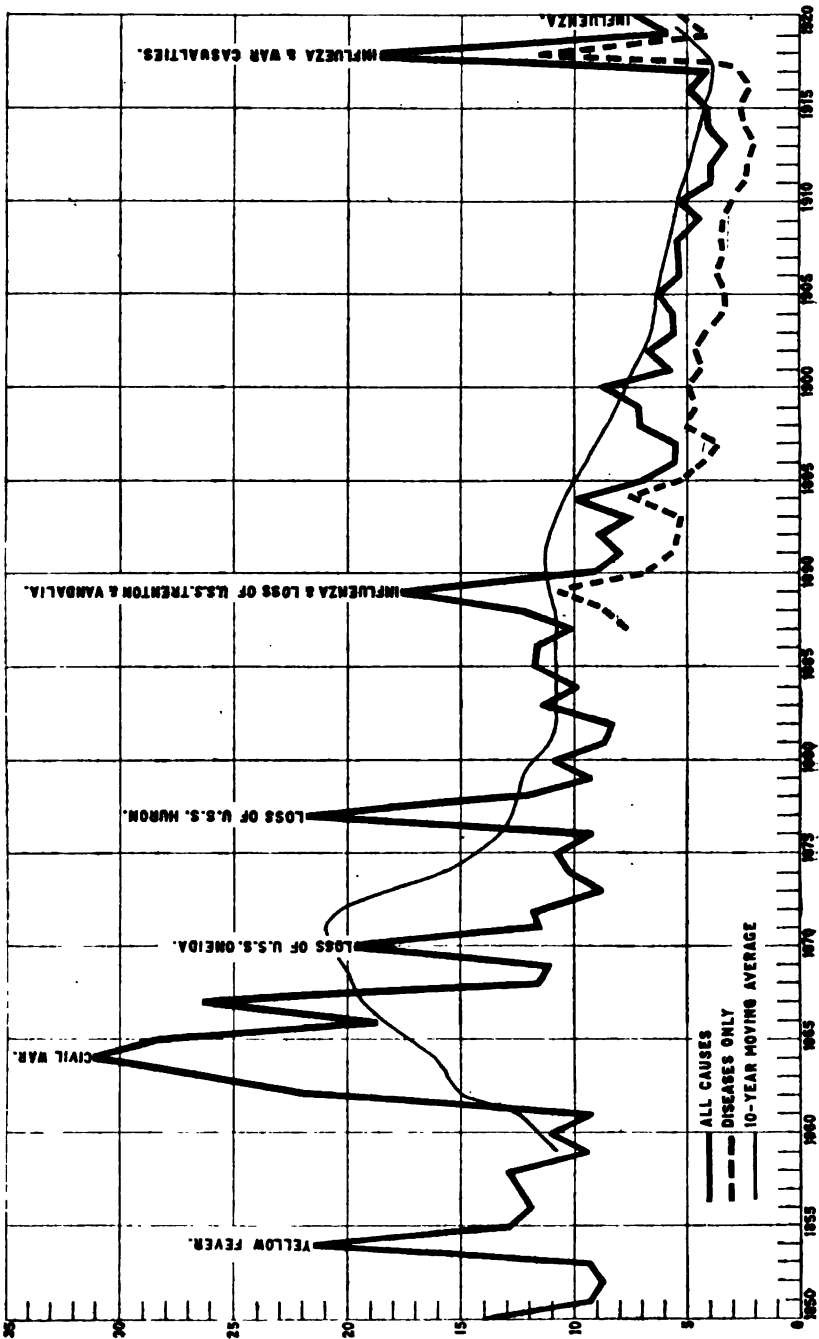
Of the 713 deaths due to disease during the calendar year 1920, 334 were due to pneumonia as follows:

Lobar pneumonia.....	71
Bronchial pneumonia.....	20
Influenzal pneumonia.....	220
Measles pneumonia.....	23

If pneumonia in its various forms could have been eliminated as a cause of death, the death rate of the Navy from disease only would have been 2.69 per thousand instead of 5.06. Of the pneumonia deaths 76.35 occurred in the first two months of the year during the epidemic of influenza.

Lobar pneumonia in the Navy is not limited to any particular season of the year. Cases were reported each week. The lowest admission rate for any week was 1.7 per thousand per annum in July. The admission rate varied from 1.7 to 29.0 per thousand per annum during the year, the rates being highest in the late winter and early

CHART No. 8.  
U. S. NAVY: ANNUAL DEATH RATES PER 1,000 OF COMPLEMENT, BY YEARS, 1850-1920.

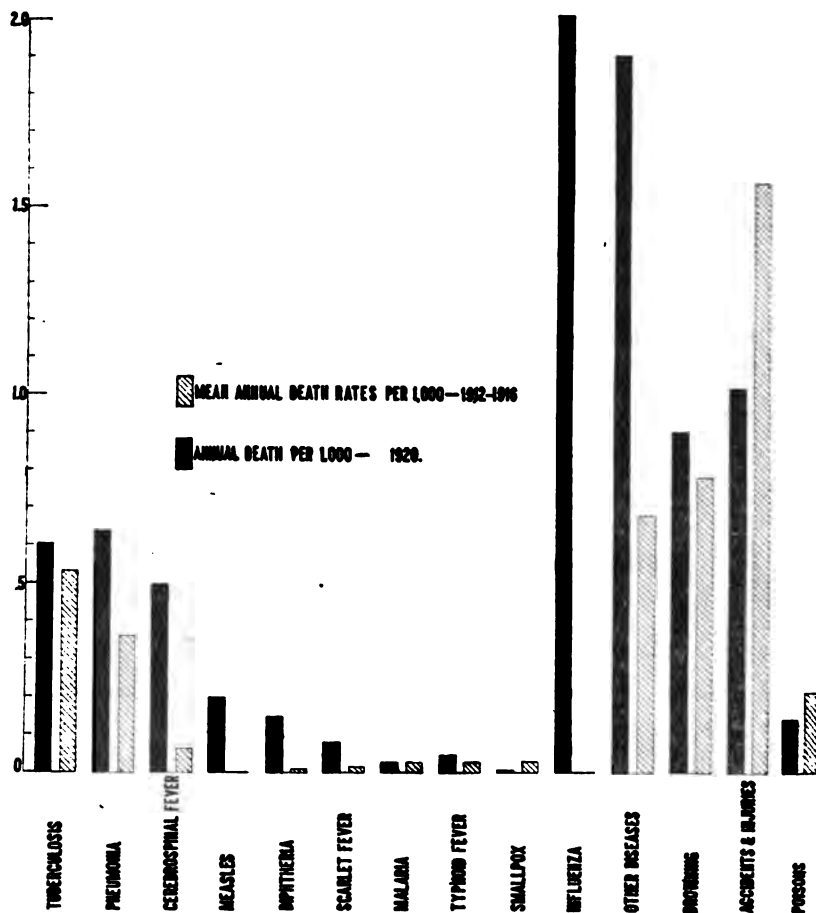


spring; the lowest rates occurred during the summer months. (See Chart No. 5.)

The death rate from pneumonia (lobar and primary bronchial pneumonia) for the force ashore was 154.9 per 100,000, while the rate for the forces afloat was only 16.35 per 100,000. The admission rates for the forces ashore was 19.32 per 1,000 per annum, and for the forces afloat 2.46 per thousand.

CHART No. 4.

U. S. NAVY: ANNUAL DEATH RATES PER 1,000, FOR THE YEAR 1920, AS COMPARED WITH THE MEAN ANNUAL DEATH RATES FOR THE FIVE-YEAR PERIOD 1912-1916, INCLUSIVE.



There were in all 91 deaths from lobar and primary bronchial pneumonia in the entire Navy during the calendar year 1920, making a death rate of 64.64 per 100,000.

For the entire Navy, calendar year 1919, the incidence rate for pneumonia (lobar and primary bronchial pneumonia) was 7.45 per 1,000. The death rate was 32.46 per 100,000; for influenza and pneumonia (all forms) combined, 219.23 per 100,000.

With few exceptions the cases which occurred among the forces afloat were scattered throughout the year, and most of these occurred



in battleships. It was exceptional for more than one or two cases to occur in any one battleship or other type of naval vessel in the same month.

#### DIPHTHERIA.

Diphtheria was also less prevalent in 1920 than in 1919 or 1918. During the calendar year 372 cases of diphtheria was reported for the entire Navy, with 20 deaths, making an admission rate of 2.64 per 1,000, a death rate of 14.21 per 100,000, and a case fatality rate of 5.37 per cent.

Diphtheria did not occur in epidemic form at any shore station or aboard any ship. Sporadic cases occurred from time to time, both ashore and afloat. From the entire service cases of diphtheria were reported every week in the year except the week ended November 6. The incidence was greater during the winter and spring than during the fall, and was lowest during August, September, and October. (See Chart No. 5.)

*Admission rates per 1,000, death rates per 100,000, and indicated case fatality rates per 100, by years, 1911 to 1920, diphtheria, entire Navy.*

Year.	Average complement, Navy and Marine Corps.	Admissions.	Deaths.	Admission rate per 1,000.	Death rate per 100,000.	Indicated case fatality rate per 100.
1911.....	61,399	26	3	0.59	4.99	8.33
1912.....	61,897	58	.....	.84	.....	.....
1913.....	68,926	73	.....	1.11	.....	.....
1914.....	67,141	59	1	.88	1.49	1.69
1915.....	68,975	38	1	.56	1.47	2.63
1916.....	69,264	48	1	.69	1.44	2.08
1917.....	245,580	209	3	.85	1.32	1.44
1918.....	503,792	1,818	48	3.61	9.53	2.64
1919.....	298,774	831	18	2.78	6.02	2.16
1920.....	140,773	372	20	2.64	14.20	5.37

*Annual admission rates per 1,000 by months, diphtheria, entire Navy, calendar year 1920.*

January.....	3.15	July.....	1.19
February.....	5.79	August.....	.68
March.....	5.79	September.....	.68
April.....	3.07	October.....	.59
May.....	4.35	November.....	1.87
June.....	2.90	December.....	1.62

#### MALARIA.

The morbidity rate for malaria, entire Navy, for the year 1920 was 23.11 per 1,000 per annum, as compared with the 10-year norm of 9.67 per 1,000 per annum. The vast majority of cases occurred among the marine forces stationed in Santo Domingo and Haiti; the annual admission rate for Haiti was 687.37 per 1,000 and for Santo Domingo 371.92 per 1,000. Ships doing duty in southern waters also showed high rates for malaria. For instance, the U. S. S. *Dolphin*, which was stationed at Tampico, Mexico, and in other southern ports for a considerable part of the year, had a morbidity rate for malaria of 279.02 per 1,000 per annum. In general, ships stationed in waters adjacent to the United States showed very low rates for malaria. Chart No. 5 shows admissions by weeks.

The morbidity rate for hemoglobinuric fever was 0.09 per 1,000 per annum.

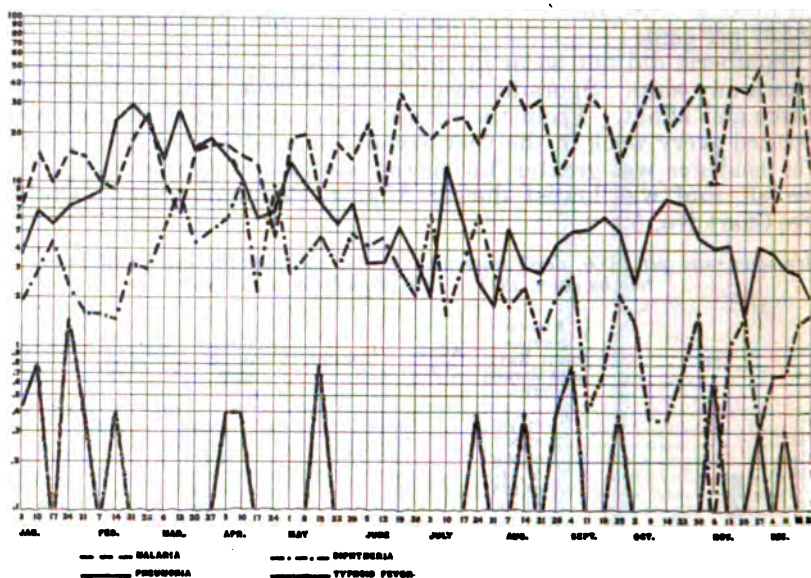
The death rate for malaria was 2.84 per 100,000 per annum, and for hemoglobinuric fever 1.42 per 100,000 per annum.

## TYPHOID FEVER.

The low incidence of typhoid fever during 1919 was not equaled in 1920, the admission rate for 1919 being 0.16 per 1,000 and that for

CHART No. 5.

U. S. NAVY: ANNUAL ADMISSION RATES PER 1,000, BY WEEKS, FOR MALARIA, PNEUMONIA, DIPHTHERIA, AND TYPHOID FEVER, ENTIRE NAVY, YEAR 1920.



1920, 0.24. Including paratyphoid infections, 35 cases were reported from the entire Navy. There were 7 deaths, making a death rate of 4.97 per 100,000. The indicated case fatality rate was 20 per cent, the highest in the past 15 years. Chart No. 5 shows admissions by weeks.

Admission rates and death rates for preceding years are shown in the following table:

*Admission rates per 1,000, death rates per 100,000, and indicated case fatality rates per 100, by years, 1905 to 1920, typhoid fever (including para-typhoid fever), entire Navy.*

Year.	Average complement, Navy and Marine Corps.	Admissions.	Deaths.	Admission rate per 1,000.	Death rate per 100,000.	Indicated case fatality rate per 100.
1905.....	41,313	172	11	4.16	26.62	6.40
1906.....	42,529	230	14	5.40	32.41	6.00
1907.....	46,336	249	17	5.37	36.69	6.89
1908.....	52,913	176	10	3.32	18.85	5.80
1909.....	57,172	189	17	3.35	29.73	8.90
1910.....	58,691	193	10	3.30	17.14	5.10
1911.....	61,399	222	15	3.61	24.42	6.70
1912.....	61,897	57	2	.92	3.23	3.50
1913.....	65,926	23	4	.31	6.06	19.10
1914.....	67,141	13	.....	.19	.....	.....
1915.....	68,075	18	1	.26	1.45	5.50
1916.....	69,294	17	.....	.23	.....	.....
1917.....	245,580	66	1	.26	.40	1.50
1918.....	503,792	83	9	.16	1.78	10.94
1919.....	298,774	49	2	.16	.67	4.08
1920.....	140,773	35	1	.24	4.97	20.00

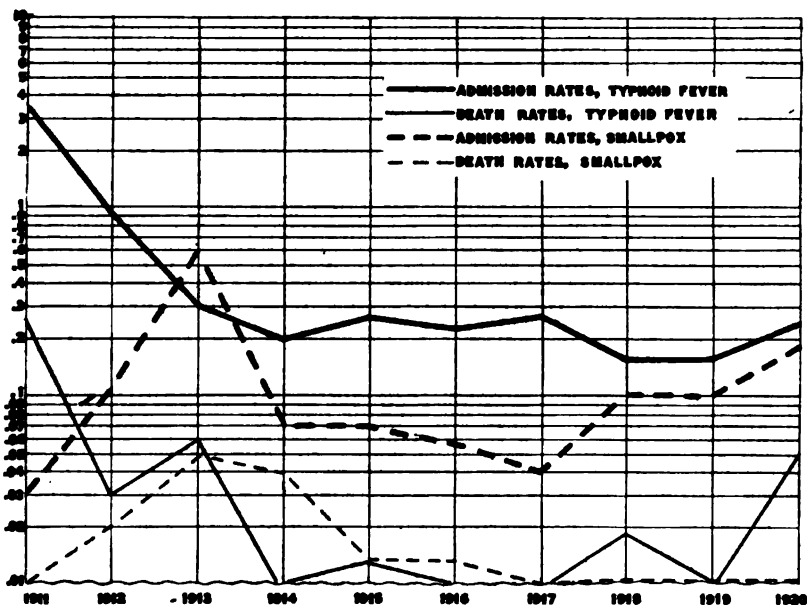
(See Chart No. 6.)

## MEASLES.

Measles was very prevalent among recruits throughout the year, the greatest incidence occurring in December, following the induction of an unusually large number of men. The lowest morbidity rate for any week during the year was 2.5 per 1,000 per annum. (See Chart No. 7.) During the calendar year 1920 there were admitted to the sick list 1,094 cases of measles, of which 26 died. The admission rate was 12.03 per 1,000, the death rate 18.47 per 100,000, and the case fatality rate 1.53 per cent. The prevalence of measles was greatest at naval training stations; no epidemics of any proportion occurred aboard ships although cases of measles appeared on various ships from time to time.

CHART No. 6.

U. S. NAVY: ANNUAL ADMISSION RATES AND ANNUAL DEATH RATES PER 1,000 BY YEARS, FOR TYPHOID FEVER AND SMALLPOX, ENTIRE NAVY, 1911-1920.



Admission rates for measles for the five-year period, 1916 to 1920, inclusive, were as follows:

	Average complement.	Admissions.	Admission rate per 1,000.
1916.....	69,294	823	7.55
1917.....	245,580	7,561	30.79
1918.....	803,792	6,915	13.78
1919.....	298,774	1,078	3.61
1920.....	140,773	1,694	12.03

## MUMPS.

As usual, mumps prevailed throughout the year. The lowest incidence occurred in the week ended October 23, with an admission rate of 5.4 per 1,000 per annum. During the spring and fall, admission rates by weeks varied between 70 and 5.4 per 1,000 per annum. (See Chart No. 7.) No deaths occurred. From the entire Navy 3,915 cases of mumps were reported for the year 1920, making an admission rate of 27.81.

When susceptible youths are rapidly inducted into the service the rates for mumps always go up. Mumps spreads more rapidly than any of the other communicable diseases, and so far no specific measures for the prevention and control of this disease have been discovered.

As usual, mumps was more prevalent at naval training stations than at other shore stations or among the personnel afloat.

Annual admission rates per 1,000, by months, were as follows:

January.....	51.83	July.....	9.63
February.....	42.02	August.....	12.19
March.....	46.46	September.....	10.40
April.....	25.74	October.....	6.65
May.....	17.05	November.....	28.51
June.....	11.76	December.....	75.48

*Admission rates per 1,000, death rates per 100,000, and indicated case fatality rates per 100, by years, 1911 to 1920, mumps, entire Navy.*

Year.	Average complement, Navy and Marine Corps.	Admissions.	Deaths.	Admission rate per 1,000.	Death rate per 100,000.	Indicated case fatality rate per 100.
1911.....	61,390	887	.....	14.44	.....	.....
1912.....	61,897	582	.....	9.08	.....	.....
1913.....	55,926	854	.....	12.95	.....	.....
1914.....	67,141	777	.....	11.57	.....	.....
1915.....	68,075	1,053	.....	15.47	.....	.....
1916.....	69,294	726	.....	10.62	.....	.....
1917.....	245,580	9,779	.....	39.82	.....	.....
1918.....	503,792	17,832	3	35.40	0.60	0.016
1919.....	298,774	5,874	.....	19.66	.....	.....
1920.....	140,773	3,915	.....	27.80	.....	.....

## SCARLET FEVER.

There has been little change in the incidence of scarlet fever during the past four years. For the entire Navy during the calendar year 1920 there were reported 323 cases of scarlet fever with 11 deaths, making an admission rate of 2.29 per 1,000 per annum; death rate, 7.81 per 100,000; and a case fatality rate of 3.40 per cent.

Scarlet fever was more prevalent at naval stations on the Atlantic coast than in the western part of the United States. The majority of cases occurring on board ship were reported from vessels of the Atlantic Fleet.

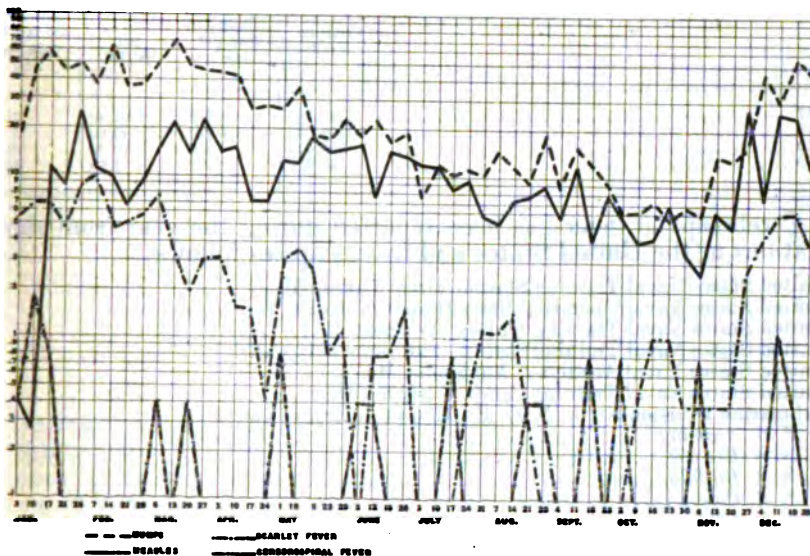
The greatest number of cases occurring at any one station were reported from the naval training station, Great Lakes, Ill.—60 during the year. The week of greatest prevalence was February 7, with an annual admission rate of 9.9 per 1,000. The disease was not epidemic at any time, cases occurring from week to week in small numbers throughout the year. (See Chart No. 7.)

*Annual admission rates per 1,000, by months, scarlet fever, entire Navy, calendar year, 1920.*

January.....	5.78	July.....	0.25
February.....	6.55	August.....	0.59
March.....	4.35	September.....	0.08
April.....	1.70	October.....	0.34
May.....	2.21	November.....	1.00
June.....	0.59	December.....	5.12

### CHART No. 7.

U. S. NAVY: ANNUAL ADMISSION RATES PER 1,000, BY WEEKS, FOR MUMPS, MEASLES, SCARLET FEVER, AND CEREBROSPINAL FEVER, ENTIRE NAVY, YEAR 1920.



*Admission rates per 1,000, mortality rates per 100,000, and indicated case fatality rates per 100, by years, 1911 to 1920, scarlet fever, entire Navy.*

Year.	Average complement, Navy and Marine Corps.	Admissions.	Deaths.	Admission rate per 1,000.	Death rate per 100,000.	Indicated case fatality rate per 100.
1911.....	61,399	14	.....	0.23	.....	.....
1912.....	61,697	33	3	.53	4.85	9.09
1913.....	65,926	22	.....	.33	.....	.....
1914.....	67,141	19	1	.28	1.49	5.26
1915.....	68,075	61	.....	.90	.....	.....
1916.....	69,294	91	.....	1.31	.....	.....
1917.....	245,580	656	5	2.68	2.04	.76
1918.....	503,792	1,214	14	2.41	2.78	1.15
1919.....	298,774	722	11	2.42	3.68	1.52
1920.....	140,773	323	11	2.20	7.81	3.40

### CEREBROSPINAL FEVER.

The incidence of cerebrospinal fever was less in 1920 than in any of the previous four years.

During the calendar year 1920 there were admitted to sick list 25 cases diagnosed as cerebrospinal fever. There were 8 deaths. The

admission rate was 0.177 per 1,000, the death rate 5.68 per 100,000, and the case-fatality rate 32 per cent. Cerebrospinal fever did not occur in epidemic form during the year. The greatest number of admissions for any one week was 3, the week ending January 10. The other cases were scattered throughout the year. See Chart No. 7.

Previous to 1917 the diagnostic terms, "cerebrospinal fever" and "cerebrospinal meningitis" were used indiscriminately by many medical officers. Therefore, it is possible only to present figures for cerebrospinal fever relating to the last four years. These are as follows:

	Complement	Admission rate per 1,000	Death rate per 100,000	Indicated case-fatality rate per 100
1917	245,380	2.088	61.40	28.72
1918	285,782	1.738	48.00	28.04
1919	288,774	.289	16.76	28.32
1920	148,773	.177	5.68	32.09

Cerebrospinal fever has been reported during the year from shore stations in the United States and from ships as follows:

United States Naval Training Station, Great Lakes, Ill.	1
United States Naval Operating Base, Hampton Roads, Va.	3
United States Naval Training Station, Newport, R. I.	5
United States Naval Training Station, San Francisco, Calif.	1
United States Naval Academy, Annapolis, Md.	1
United States Naval Training Camp, Gulfport, Miss.	1
Submarine Division No. 5 (N. O. B., Hampton Roads, Va.)	2
U. S. S. <i>Anthony</i>	1
U. S. S. <i>Broome</i>	1
U. S. S. <i>Buffalo</i>	1
U. S. S. <i>Cum</i>	1
U. S. S. <i>Chattanooga</i>	2
U. S. S. <i>New Mexico</i>	1
U. S. S. <i>Oklahoma</i>	1
U. S. S. <i>O'Brien</i>	1
U. S. S. <i>Proteus</i>	1
U. S. S. <i>Schroeder</i>	1

With regard to season of the years, cases of cerebrospinal fever were reported from the entire Navy as follows:

January	3	July	2
February	0	August	1
March	2	September	1
April	1	October	4
May	2	November	2
June	1	December	6

#### SMALLPOX.

During the calendar year 1920, 25 cases of smallpox, with 1 death, occurred in the Navy. The admission rate was therefore 0.117 per 1,000, death rate 0.71 per 100,000, and case-fatality rate 4 per cent. (See Chart No. 6.)

Cases were reported as follows:

United States Naval Training Station, Great Lakes, Ill.	1
United States Naval Training Station, Hampton Roads, Va.	3
United States Naval Training Station, San Francisco, Calif.	1
United States Naval Hospital, Norfolk, Va.	6
Receiving ship, Puger Sound, Wash.	1

Radio station, Marshfield, Oreg.....	1
Brigade Signal Company, Haiti.....	1
Depot, quartermaster detachment, Haiti.....	1
Marine detachment, Managua, Nicaragua.....	1
Marine barracks, Pearl Harbor, Hawaii.....	1
Naval station, Pearl Harbor, Hawaii.....	1
U. S. S. <i>Albany</i> .....	3
U. S. S. <i>Eagle No. 4</i> .....	1
U. S. Army Transport <i>Logan</i> .....	1
U. S. S. <i>New Orleans</i> .....	1
U. S. S. <i>Pensacola</i> .....	1

Admission rates per 1,000, death rates per 100,000, and indicated case-fatality rates per 100, by years, 1910 to 1920, smallpox, entire Navy.

Year.	Average complement, Navy and Marine Corps.	Admissions.	Deaths.	Admission rate per 1,000.	Death rate per 100,000.	Indicated case-fatality rate per 100.
1910.....	58,691	16	5	0.27	8.52	31.25
1911.....	61,399	2	1	.03	1.62	14.29
1912.....	61,897	7	3	.11	4.55	7.89
1913.....	65,926	23	2	.58	2.98	40.00
1914.....	67,141	5	1	.07	1.47	20.00
1915.....	68,075	5	1	.06	1.44	28.00
1916.....	69,294	4	1	.04	.41	10.00
1917.....	245,680	10	3	.10	.60	5.88
1918.....	503,792	51	2	.10	.67	6.67
1919.....	298,774	30	1	.17	.71	4.00
1920.....	140,773	25				

## TUBERCULOSIS.

During the year 1920 there were admitted to the sick list 637 cases of tuberculosis, and there were 84 deaths, of which 65 were due to the disease in its chronic pulmonary form. The admission rate for all forms of tuberculosis was 4.52 per 1,000, and the death rate 59.67 per 100,000.

There is little change in the incidence of tuberculosis from year to year. Admission rates and death rates, all forms of tuberculosis, entire Navy, for preceding years are shown in the following table (see Chart No. 8):

Admission rates per 1,000, death rates per 100,000, and indicated case-fatality rates per 100, by years, 1910 to 1920, inclusive, tuberculosis (all forms), entire Navy.

Year.	Average complement Navy and Marine Corps.	Admissions.	Deaths.	Admission rate per 1,000.	Death rate per 100,000.	Indicated case-fatality rate per 100.
1910.....	58,691	349	45	5.96	77.13	12.89
1911.....	61,399	319	39	5.19	63.51	12.32
1912.....	61,897	264	32	4.26	51.53	12.12
1913.....	65,926	325	30	4.92	45.50	9.23
1914.....	67,141	295	32	4.39	56.59	12.88
1915.....	68,075	253	36	3.71	52.90	14.23
1916.....	69,294	287	39	4.14	56.28	13.59
1917.....	245,680	790	61	3.24	24.83	7.66
1918.....	503,792	2,398	130	4.75	26.00	5.42
1919.....	298,774	1,409	172	4.72	57.57	12.21
1920.....	140,773	637	84	4.52	59.67	13.18

(See Chart No. 8.)

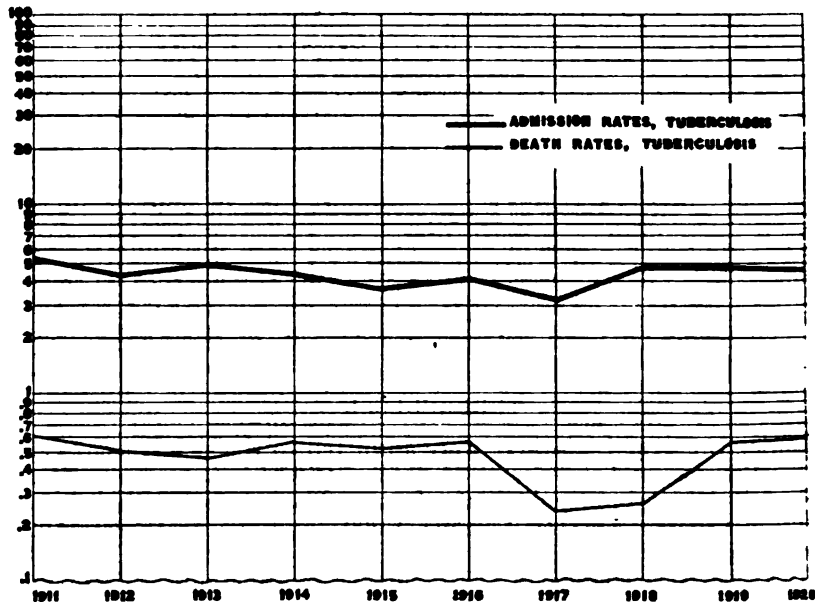
## INTESTINAL PARASITES.

Recruits from Southern States are examined for hookworm and other intestinal parasites as a matter of routine.

The admission rate for intestinal parasites for the entire Navy, all classes of parasites (fungi and animal), was 18.02 per 1,000. There was one death from dysenteric abscess unqualified.

CHART No. 8.

U. S. NAVY: ANNUAL ADMISSION RATES AND ANNUAL DEATH RATES PER 1,000, BY YEARS, FOR TUBERCULOSIS (ALL FORMS), ENTIRE NAVY, YEAR 1920.



## TRACHOMA.

There were 14 admissions with a diagnosis of trachoma, with a morbidity rate of 0.10 per 1,000, the lowest rate in the past seven years. The admission rates for the past nine years are shown in the following table:

*Trachoma.*

Years.	Average complement.	Admissions.	Rate per 1,000	Years.	Average complement.	Admissions.	Rate per 1,000.
1912.....	61,807	3	0.048	1916.....	60,294	12	0.17
1913.....	65,926	8	.12	1917.....	245,530	37	.15
1914.....	67,141	8	.12	1918.....	503,792	59	.12
1915.....	68,075	31	.45	1919.....	298,774	43	.14
				1920.....	140,773	14	.10

## VENEREAL DISEASE.

The annual admission rate for venereal disease as a class was 126.11 per 1,000, which was somewhat higher than for the previous year—111.62 per 1,000 per annum. Although the incidence of venereal disease has gradually increased during the past two years, it has not increased to such an extent to equal the rates existing prior to 1918. Chart No. 9 shows the annual admission rates per

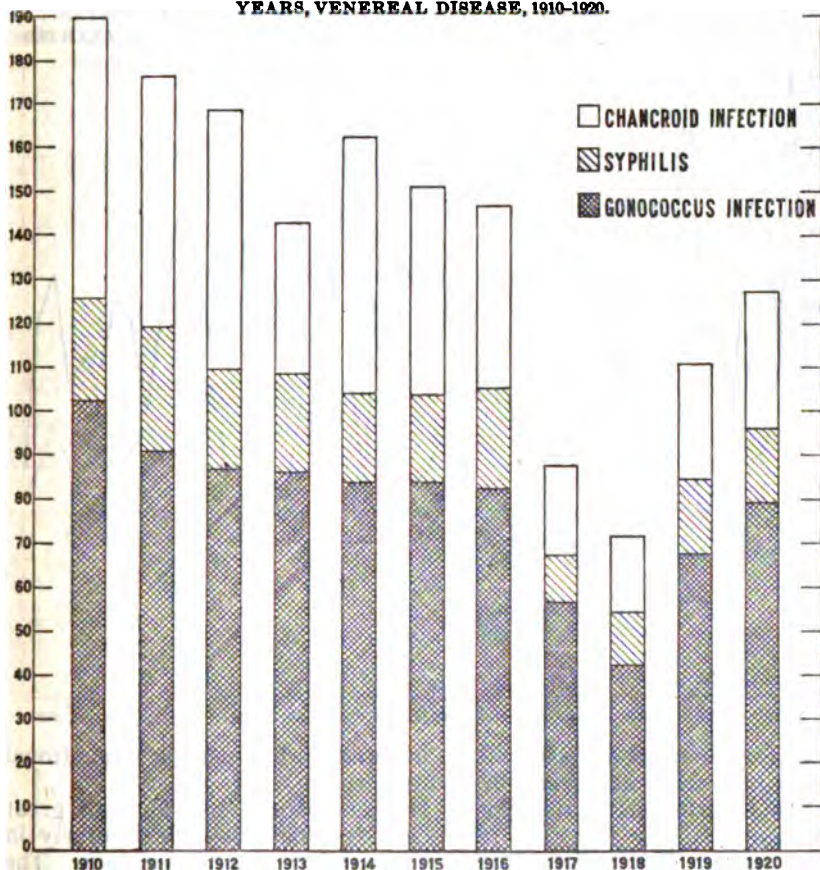


1,000 for venereal disease and components by years from 1910 to 1920, inclusive.

It is impossible to determine the total damage to the Navy resulting from venereal disease. The actual damage in lost time—namely, absence from duty on account of being on the sick list—was 229,638 days. Or, in other words, an average of 629 men were incapacitated for duty each day in the year as a result of venereal disease. Of the total admissions to the sick list on account of venereal disease, 21.6 per cent were due to chancroid, 64.2 per cent to gonococcus infection, and 14.2 per cent to syphilis.

CHART No. 9.

U. S. NAVY: ANNUAL ADMISSION RATES PER 1,000 AND THEIR COMPONENTS, BY YEARS, VENEREAL DISEASE, 1910-1920.



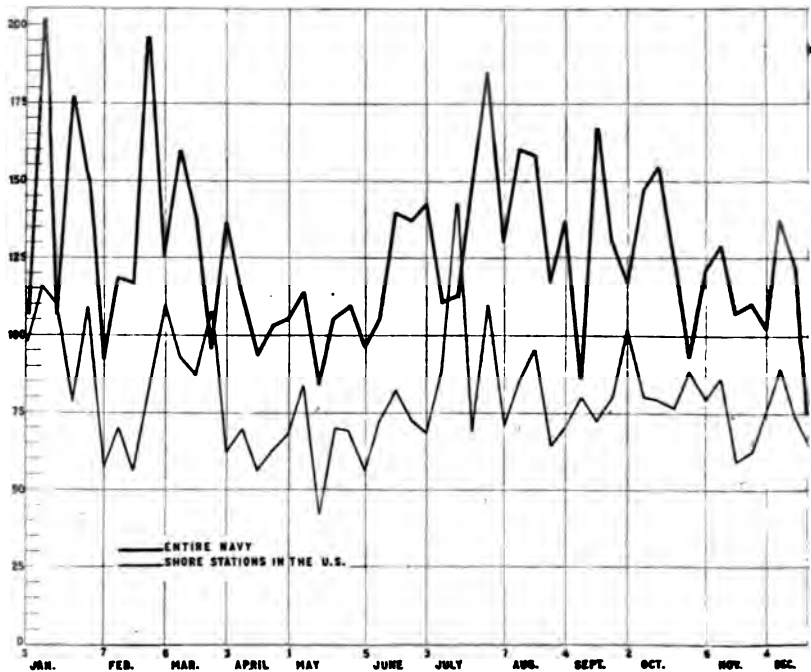
In a study of the venereal disease problem from various angles it was found that the average length of service of the men who contracted venereal disease was 17.6 months. From this it can be seen that the vast majority of infections occurred in men within a year after they had left the training station. In general, it may be noted that throughout the year admission rates for the venereal diseases were lower for shore stations than for the entire Navy. (See Chart No. 10.)

The rates from training stations, which as a rule were comparatively low, had a decided effect upon the final rate for shore stations, whereas the high rate for the entire Navy was largely due to the excessively high rates existing among the forces afloat serving in Europe and on the Asiatic Station as well as by the marines on duty in foreign countries.

The educational program carried out by the social hygiene section of the Sixth Division, Bureau of Navigation, has been continued. It is believed that such procedures are of great value, although definite results are not being obtained as rapidly as might be expected. In time, however, it is believed that the morbidity

CHART No. 10.

U. S. NAVY: ANNUAL ADMISSION RATES PER 1,000, FOR VENEREAL DISEASE, BY WEEKS, ENTIRE NAVY AND SHORE STATIONS IN THE UNITED STATES, YEAR 1920.



rates for venereal disease will be lowered and that such educational procedures will have great effect upon this.

The Interdepartmental Social Hygiene Board has been of great assistance to the Navy in its social hygiene work, particularly in cities where the civilian authorities gave their cooperation. The morbidity rates for the men of the Navy stationed in and around such cities have generally been very-low. For instance, the morbidity rate for 1920 for men stationed at the naval air station, San Diego, where very fine work was done in ridding the city of vice by both Federal authorities and local authorities, was 36.52 per 1,000 per annum. In other places where the Interdepartmental Social Hygiene Board has been unable to obtain local support, rates have been much higher.

E. R. STITT.

## STATISTICS.

The basis for all medical department statistics lies in the forms used in connection with the preparation and keeping of the "Health Record," which deals with the physical requirements and health of the personnel of the Navy and Marine Corps.

*Table No. 1.*—Detailed statement of diseases and injuries for the calendar year.

(a) This table gives an alphabetical list of disabilities, the Navy class and international numbers (from the Navy nomenclature), shows the method of taking up and disposing of all cases, the number of sick days or time lost to the service (from Form F cards), and a summary with comparative data for 10 previous years (from Form K).

(b) The class number (Roman numeral) refers to the classification of the Navy nomenclature, as follows:

- CLASS I. Diseases of blood.
- II. Diseases of circulatory system.
- III. Diseases of digestive system.
- IV. Diseases of ductless glands and spleen.
- V. Diseases of ear.
- VI. Diseases of eye and adnexa.
- VII. Diseases of genito-urinary system (nonvenereal).
- VIII. Communicable diseases transmissible by oral and nasal discharges.
- IX. Communicable diseases transmissible by intestinal discharges.
- X. Communicable diseases transmissible by insects and other arthropods.
- XI. Tuberculosis (all forms).
- XXII. Venereal diseases.
- XIII. Other diseases of infective type.
- XIV. Diseases of lymphatic system.
- XV. Diseases of mind.
- XVI. Diseases of motor system.
- XVII. Diseases of nervous system.
- XVIII. Diseases of respiratory system.
- XIX. Diseases of skin, hair, and nails.
- XX. Hernia.
- XXI. Miscellaneous diseases and conditions.
- XXII. Parasites (fungi and certain animal parasites).
- XXIII. Tumors.
- XXIV. Female diseases and conditions.
- XXV. Injuries.
- XXVI. Poisons.

(c) The international number refers to the classification of causes of death prepared by the International Commission (Paris, July 1 to 3, 1909).

(d) In the case of wounds, etc., and poisons, key letters immediately following the title (e. g., Abrasion, unqualified "G") are given for classification of the cause of such injury, and are interpreted as follows:

- A. Suicidal.
- B. Homicidal.
- C. Conflagration. Includes all injuries incident to general conflagration. Burns otherwise received are not classed hereunder.
- D. Accidental drowning or submersion.
- E. Traumatism by firearms, accidental. To include all injuries caused by the projectile, the blast from great guns, or from the piece when fired.
- F. Traumatism by explosion. To include powder, gas, compressed air, or steam explosions; also the explosion of a gun.
- G. Traumatism by fall.
- H. Traumatism by machines.
- I. Traumatism by other crushing.
- J. Traumatism due to athletic sports.
- K. Casualty in action.
- L. Traumatism due to other external violence not classified above.

*Table No. 2.*—Distribution of diseases and injuries among occupational groups for the calendar year.

(a) This table shows by occupational groups the class of disability, average complement, number of admissions, deaths, suicides, invalided from service (with rates per 1,000), and sick days; also the total for all occupations, giving admissions, deaths, invalided from service (with rates per 1,000 based on the entire service complement), and sick days.

(b) The average complement for each occupational group is obtained from the Navy Year Book, except in case of prisoners, which is obtained from the office of the Judge Advocate General of the Navy, and grouped as follows:

Officers: Line, medical, dental, pay, chaplain, professor of mathematics, naval constructor, civil engineer, chief and warrant, and Marine Corps.

Midshipmen: All classes of this personnel.

Electricians: All classes of this rating.

Engine room: Machinist's mate and oiler.

Fireroom: Fireman and water tender.

All other artificers: Blacksmith, boiler maker, carpenter's mate, coppersmith, painter, plumber and fitter, printer, sailmaker's mate, ship fitter, and shipwright.

Clerical: Storekeeper and yeoman.

Culinary: Baker, commissary steward, cook, messman, ship's cook, and steward.

Hospital corps: All ratings of this corps.

Marines (enlisted): All enlisted ratings except Marine Band and drummer and trumpeter.

Musicians: Bandmaster, bugler, drummer, leader, musician, and trumpeter.

Prisoners: Detentioners and general court-martial prisoners.

Apprentices: Apprentice seamen.

Ordnance: Gunner's mate and turret captain.

All other deck ratings: Boatswain's mate, coxswain, landsman, master-at-arms, mate, quartermaster, seaman, and seaman-gunner.

(c) Number of admissions, deaths, suicides, invalided from service and sick days obtained from Form F cards.

(d) Rate per 1,000 is based on the average complement at the heading for each group.

Death rate and invalided rate is obtained by multiplying the number of deaths or the number invalided by 1,000 and dividing by the average complement.

Percentage of sick is obtained by multiplying the daily average of patients by 100 and dividing by the average complement.

Daily average of patients is obtained by dividing the sick days by the number of year days.

*Table No. 3.*—Deaths in the Navy and Marine Corps for the calendar year. This table is a summary of deaths, showing the cause, number, and the distribution among the officers and men.

*Table No. 4.*—Discharged from the service by reason of physical disability during the calendar year. This table is a summary of those invalided from the service or retired on account of physical disabilities, showing the disability, number, and distribution among the officers and men.

*Table No. 5.*—Surgical operations for the calendar year. This table is a summary of surgical operations performed, showing the condition for which the operation was performed, result of the operation, and the anesthetic employed.

*Table No. 6.*—Dental operations for the calendar year. This table shows a summary of dental operations and treatment, together with the number for each kind.

*Table No. 7.*—Recruiting statistics for the Navy and Marine Corps for the calendar year. This table is a summary of persons applying, examined, and enlisted, showing the total number of applicants, total enlisted, number examined by the medical officer, number rejected by the medical officer for physical disqualifications, in the Navy for original and reenlistment, in the Marine Corps for original and reenlistment; also accepted applicants reexamined and the number examined, etc., for all classes of the Naval Reserve and Marine Corps Reserve.

A list of the principal causes of rejection by the medical officer is also appended.

TABLE NO. 1.—DETAILED STATEMENT OF DISEASES AND INJURIES  
FOR THE CALENDAR YEAR 1920.

Diagnoses.	Taken up as—			Disposition.							Number of sick days this year.
	Remaining from last year.	Admitted.	Readmitted.	Duty.	Diagnosis changed.	Died.	Invalided from service.	Ran.	Transferred.	Continued to next year.	
DISEASES.											
Abscess about rectum (Class III, Inter. 110B).....	9	135	104	151	14	1			76	6	3,997
Abscess about urethra (Class VII, Inter. 125).....		9	4	7	1				4	1	210
Abscess, entamebic, unqualified (Class XXII, Inter. 107).....		1		1							12
Abscess of axilla (Class XIV, Inter. 84).....	7	74	27	72	6			1	26	3	1,496
Abscess of brain (Class XVII, Inter. 60).....		8	3		2	7			2		28
Abscess of eye and adnexa (Class VI, Inter. 75C).....		5	6	5	3				1	2	105
Abscess of kidney (Class VII, Inter. 122).....		2	3	2	1	1			1		164
Abscess of kidney, perinephritic (Class VII, Inter. 122).....	2	5	7	4	4	1			4	1	424
Abscess of liver (Class III, Inter. 115).....		2	4	1	2		1		2		260
Abscess of lung (Class XVIII, Inter. 98).....	2	5	2	5			1		3		534
Abscess of lymph-node (Class XIV, Inter. 84).....	3	82	53	88	5				43	2	2,362
Abscess of nasal septum (Class XVIII, Inter. 86).....		5	6	5	3				3		71
Abscess of pharynx (Class III, Inter. 100).....		15	6	14	1				6		190
Abscess of prostate gland (Class VII, Inter. 126).....		3		2	1						54
Abscess of salivary gland (Class III, Inter. 99B).....		5	2	3	3				1		186
Abscess of scrotum (Class VII, Inter. 127).....		19	9	18	3				7		240
Abscess of tongue (Class III, Inter. 99B).....		3	3	3	1				2		29
Abscess, subphrenic (Class III, Inter. 118).....	1						1				63
Abscess, unqualified (Class XIII, Inter. 144).....	66	1,643	563	1,635	153	6	3	2	422	51	23,617
Achylia gastrica (Class III, Inter. 108).....			2	1	1						25
Acidosis, nondiabetic (Class XXI, Inter. 55).....		2	2	2	1				1		24
Acne (Class XIX, Inter. 145C).....	5	39	36	40	8				26	6	2,024
Adenoids (Class XVIII, Inter. 86).....	6	47	40	45	8				36	4	931
Adenoma (Class XXIII, Inter. 46).....		9	8	6	3				5	3	188
Adhesions about gall-bladder (Class III, Inter. 115).....	1	1		1			1				17
Adhesions about stomach (Class III, Inter. 117).....	2	1	3	2	1		1		2		112
Adhesions of peritoneum (Class III, Inter. 117).....	15	106	150	83	39		29		96	24	5,386
Adhesions, preputial (Class VII, Inter. 127).....		1		1							4
Albuminuria (Class VII, Inter. 120).....		12	12	11	3		1		9		206
Alopecia areata (Class XIX, Inter. 145C).....		1		1							0
Amaurosis (Class VI, Inter. 75C).....		1		1							0
Amblyopia (Class VI, Inter. 75C).....	5	47	52	14	20		26	1	36	7	2,054
Amputation stump (Class XXI, Inter. 149).....	26	80	78	39	13		61		54	17	7,193

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1920—Contd.

Diagnoses.	Rem.	A.	R.A.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>DISEASES—Continued.</b>											
Anemia of brain (Class XVII, Inter. 74).....		2	2	2	1				1		8
Anemia, pernicious (Class I, Inter. 54).....		7	8	2	4	2			4	3	600
Anemia, simple (Class I, Inter. 54).....	3	17	17	12	10		1		12	2	600
Anemia, splenic (Class I, Inter. 54).....		1	2		1	1			1		4
Aneurism (Class II, Inter. 81).....	1	8	10	8	2		2		6	1	303
Aneurismal varix (Class II, Inter. 83).....		1					1				10
Angina ludovici (Class III, Inter. 100).....		2	1	2					1		9
Angina pectoris (Class II, Inter. 80).....	2	2	2	1	1	2			2		237
Angioma (Class XXIII, Inter. 46).....		2	2	1	1		1		1		49
Angiospastic edema (Class XVII, Inter. 74).....	1	12	4	10	3		2		2		126
Anidrosis (Class XIX, Inter. 145C).....		1		1							13
Ankylosis of joint (Class XVI, Inter. 147).....	11	84	86	28	23		52		66	12	5,327
Ankylosis of ossicles (Class V, Inter. 76).....		2		1			1				42
Anthrax (Class XIII, Inter. 23).....		2	3	2	2				1		135
Anti-inoculation, unqualified (Class XXI, Inter. 189A).....	5	564	96	579	33			1	51	1	1,773
Aortitis (Class II, Inter. 81).....	1	1	2	1	1				2		137
Apraxia (Class XVII, Inter. 74).....		2	2	1					2	1	73
Apoplexy (Class XVII, Inter. 64).....		2	1	2					1		170
Appendicitis, acute (Class III, Inter. 103).....	98	1,038	1,042	991	263	15		7	796	106	34,510
Appendicitis, chronic (Class III, Inter. 103).....	46	429	437	427	124		2	2	200	48	15,945
Arterial sclerosis, cerebral (Class XVII, Inter. 81).....		1	1	1	1						41
Arterial sclerosis, general (Class II, Inter. 81).....		8	17	6	5	1	1		9	3	340
Arthritis, acute (Class XVI, Inter. 147).....	21	223	135	227	39		4	1	90	18	6,056
Arthritis, chronic (Class XVI, Inter. 147).....	26	154	212	111	58		62		143	18	10,900
Arthritis, deformans (Class XVI, Inter. 46A).....	2	1	6				1		7	1	580
Ascariasis (Class XXII, Inter. 107).....	1	66	47	66	19				29		819
Asthma (Class XVIII, Inter. 86).....	16	91	110	73	17	1	32	1	75	18	4,085
Astigmatism (Class VI, Inter. 75C).....	7	313	78	294	23		27		49	5	2,378
Ataxia, hereditary (Class XVII, Inter. 63).....	1			1							7
Atony of bladder (Class VII, Inter. 124).....		1	2	1	1				1		20
Atony of stomach (Class III, Inter. 103).....	1	2	2	1					3	1	305
Atrophy of (bone or cartilage) (Class XVI, Inter. 149).....	1	6	4	2	1		4		4		406
Atrophy of muscle (Class XVI, Inter. 149).....	2	23	18	2	5		17		15	4	1,383
Atrophy of optic nerve (Class VI, Inter. 75C).....	2	10	12	1	2		8		10	3	490
Atrophy of testicle (Class VII, Inter. 127).....	2	19	20	16	5		2	1	16	1	337
Autointoxication, intestinal (Class III, Inter. 110B).....	4	622	165	603	90	1	1		96	3	3,334
Bacteriuria (Class VII, Inter. 124).....		4	6	4	3				2	1	233
Balanoposthitis (Class VII, Inter. 127).....	3	46	23	40	6				20	5	667
Blastomycosis (Class XXII, Inter. 25B).....		1	2		1				2		28
Blepharitis (Class VI, Inter. 75C).....		13	12	14	4				7		273
Botulism (Class XIII, Inter. 164).....		3	4	3	2				2		22
Bradycardia (Class II, Inter. 85).....		4	3	3			1		3		129
Bromidrosis (Class XIX, Inter. 145C).....	1	1		1			1				41
Bronchiectasis (Class XVIII, Inter. 90).....		6	6	2	2		3		4	1	168
Bronchitis, acute (Class XVIII, Inter. 90).....	194	8,257	2,815	7,879	874			9	2,253	251	68,538
Bronchitis, chronic (Class XVIII, Inter. 90).....	101	624	629	496	256		83	7	439	73	25,963
Bronchitis, fibrinous (Class XVIII, Inter. 90).....		2	2	2					2		188

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1920—Contd.

Diagnoses.	Ram.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>DISEASES—Continued.</b>											
Buritis, acute (Class XVI, Inter. 149).....	5	66	32	61	11	.....	1	.....	28	2	1,607
Buritis, chronic (Class XVI, Inter. 149).....	5	24	51	39	12	.....	10	.....	30	8	2,014
Callosities (Class XVII, Inter. 74).....	.....	3	6	4	.....	.....	.....	.....	5	.....	115
Calculus in bladder (Class VII, Inter. 123).....	1	6	3	6	2	.....	.....	.....	2	.....	123
Calculus in ureter, impacted (Class VII, Inter. 123).....	2	18	22	23	5	.....	.....	.....	14	.....	769
Callosities (Class XIX, Inter. 145C).....	.....	20	13	17	2	.....	1	.....	11	1	343
Carbuncle (Class XIII, Inter. 143).....	3	97	33	96	4	.....	.....	.....	29	4	1,208
Carcinoma (Class XXIII, Inter. 39-45).....	1	9	2	2	4	7	.....	.....	5	1	669
Cardiospasm (Class III, Inter. 103).....	.....	2	1	1	1	.....	.....	.....	.....	.....	104
Caries of tooth (Class III, Inter. 99A).....	2	47	27	21	11	.....	21	.....	22	1	874
Carrier, diphtheria bacillus (Class XXI, Inter. 9b).....	4	221	63	196	49	.....	.....	.....	41	3	4,460
Carrier, meningococcus (Class XXI, Inter. 61a).....	2	13	6	15	.....	.....	.....	.....	6	.....	398
Carrier, typhoid bacillus (Class XXI, Inter. 1a).....	.....	1	2	1	.....	.....	.....	.....	2	.....	26
Cataract (Class VI, Inter. 75C).....	1	13	11	1	3	.....	10	.....	8	3	646
Cellulitis (Class XIII, Inter. 144).....	54	1,802	391	1,781	106	4	3	1	483	70	24,907
Cerebrospinal fever (Class VIII, Inter. 61a).....	7	25	39	11	21	8	3	.....	20	8	1,911
Corumen, accumulation of (Class V, Inter. 75).....	.....	7	7	7	3	.....	.....	.....	4	.....	47
Chalazion (Class VI, Inter. 75C).....	.....	11	6	12	1	.....	.....	.....	4	.....	133
Chancroid (Class XII, Inter. 38A).....	118	3,763	1,015	3,916	288	.....	3	6	605	78	29,140
Chancroid of lymph-node (Class XII, Inter. 38A).....	39	390	273	470	68	.....	1	1	140	22	9,664
Chicken pox (Class VIII, Inter. 19).....	15	347	267	318	63	.....	.....	.....	233	15	7,219
Chilblain (Class XIX, Inter. 145C).....	.....	5	3	4	1	.....	.....	.....	3	.....	61
Chloasma (Class XIX, Inter. 145C).....	.....	1	.....	.....	.....	.....	1	.....	.....	.....	13
Cholangitis, acute (Class III, Inter. 115).....	20	420	250	400	78	.....	.....	3	188	21	8,734
Cholangitis, chronic (Class III, Inter. 115).....	.....	3	2	3	.....	.....	.....	.....	2	.....	76
Cholecystitis, acute (Class III, Inter. 115).....	4	68	49	63	22	2	.....	.....	30	4	1,502
Cholecystitis, chronic (Class III, Inter. 115).....	3	25	28	21	12	1	.....	1	17	4	1,244
Cholelithiasis (Class III, Inter. 114).....	1	7	7	7	2	.....	.....	.....	4	2	335
Chondritis (Class XVI, Inter. 149).....	.....	1	2	1	1	.....	.....	.....	1	.....	32
Chondroma (Class XXIII, Inter. 46).....	.....	1	2	1	1	.....	.....	.....	1	.....	8
Chorea (Class XVII, Inter. 74).....	2	17	19	3	6	1	10	1	14	3	619
Chorea, chronic progressive (Class XVII, Inter. 74).....	.....	1	.....	.....	.....	.....	1	.....	.....	.....	42
Choroiditis (Class VI, Inter. 75C).....	4	42	58	19	17	.....	21	1	39	7	3,124
Cicatricial contraction (Class XXI, Inter. 145C).....	4	77	75	26	21	.....	44	.....	52	13	2,726
Cicatrix of skin (Class XIX, Inter. 145C).....	2	55	55	27	16	.....	22	.....	37	10	1,915
Cirrhosis of liver, hypertrophic (Class III, Inter. 113).....	.....	2	2	2	1	.....	.....	.....	1	.....	43
Clavus (Class XIX, Inter. 145C).....	1	12	2	13	.....	.....	1	.....	1	.....	102
Colitis, acute (Class III, Inter. 105B).....	1	57	42	59	18	.....	.....	.....	22	1	635
Colitis, chronic (Class III, Inter. 105B).....	.....	9	11	4	2	.....	1	.....	9	4	563
Color blindness (Class VI, Inter. 75C).....	.....	8	1	.....	.....	.....	8	.....	1	.....	86
Comedo (Class XIX, Inter. 145C).....	.....	2	1	2	.....	.....	.....	.....	1	.....	29
Concretion in salivary gland (Class III, Inter. 199B).....	.....	1	2	.....	2	.....	.....	.....	1	.....	32
Congestion of kidney (Class VII, Inter. 122).....	.....	1	.....	.....	.....	.....	.....	.....	1	.....	70
Conjunctivitis, acute (Class VI, Inter. 75A).....	7	288	100	277	30	.....	.....	1	79	8	2,562
Conjunctivitis, chronic (Class VI, Inter. 75A).....	4	47	55	42	18	.....	5	.....	39	2	1,980
Conjunctivitis, phlyctenular (Class VI, Inter. 75A).....	.....	2	1	1	1	.....	.....	.....	1	.....	43
Constipation (Class III, Inter. 110B).....	6	550	201	540	99	.....	.....	.....	107	11	3,503

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1920—Contd.

Diagnoses.	Rem.	A.	R.A.	D.	C.	DD.	IS.	R.	T.	(Cont. Days.
<b>DISEASES—Continued.</b>										
Constitutional inferiority (men- tal) (Class XV, Inter. 65)	20	380	428	40	120		340	8	317	2214,885
Constitutional psychopathic state (Class XV, Inter. 65)	14	74	120	9	46		50	4	101	84,116
Contracture of joint (Class XVI, Inter. 147)	1	5	3	4			2		3	35
Contracture of (muscle, fascia, tendon or sheath) (Class XVI, Inter. 149)	2	62	24	19	4		20	1	20	41,300
Cornu (Class XIX, Inter. 145C)		1		1						1
Cramp of ciliary muscle (Class VI, Inter. 75C)		1	2	1	1				1	20
Cramp of muscle (Class XVI, Inter. 149)		5	3	5	2				1	20
Curvature of spine (Class XVI, Inter. 39C)	1	23	23	6	7		15		12	7 885
Cyclitis (Class VI, Inter. 75C)		1	2	1	1				1	15
Cystitis, acute (nonvenereal; (Class VII, Inter. 124)	3	50	35	48	17				22	1 1,651
Cystitis, chronic (nonvenereal; (Class VII, Inter. 124)	5	25	41	18	19		5		25	4 1,308
Cyst of brain (Class XVII, Inter. 74)		2	1		1	1			1	17
Cystoma (Class XXIII, Inter. 46)	5	63	51	63	11		1		41	3 1,135
Dacryoadenitis (Class VI, Inter. 75C)		3	2	1	1				3	67
Dacryocystitis (Class VI, Inter. 75C)	2	16	20	14	3		6		13	2 550
Deafness (Class V, Inter. 76)	3	22	25	12	9		6		20	3 1,288
Deformity of bladder, acquired (Class VII, Inter. 124)		2	6	2	3		1		2	122
Deformity of nose, acquired (Class XVIII, Inter. 96)		13	10	12	1				10	250
Deformity of penis, acquired (Class VII, Inter. 127)		3	3	1	2		2		1	119
Deformity of stomach, acquired (Class III, Inter. 103)		1	2	1	1				1	27
Deformity of urethra, acquired (Class VII, Inter. 125)		1	1	1					1	3
Dementia, paralytica (Class XV, Inter. 67)	23	19	50	5	11	3	17	1	40	15 6,330
Dementia, praecox (Class XV, Inter. 68)	64	198	587	11	128		105	8	400	7626,417
Dengue (Class X, Inter. 19)	3	501	284	404	60				228	6 4,175
Dentition (Class XXI, Inter. 189A)		9	5	6	4		1		2	1 164
Dermatitis, gangrenosa (Class XIX, Inter. 142)		1							1	14
Dermatitis, unqualified (Class XIX, Inter. 145C)	8	113	71	125	28		1		33	5 2,444
Dermatitis, venenata (Class XIX, Inter. 145C)	2	86	18	88	7				11	650
Detachment of retina (Class VI, Inter. 75C)	3	2	4	3			1		4	1 650
Deviation of nasal septum (Class XVIII, Inter. 86)	40	676	555	654	107		1	2	472	2515,300
Diabetes insipidus (Class XXI, Inter. 75)			2				1		1	41
Diabetes mellitus (Class XXI, Inter. 50)	10	28	47	14	7	1	14	2	30	8 3,402
Diagnosis undetermined (Class XXI, Inter. 189A)	1	10						7		4 251
Dilatation, acute cardiac (Class II, Inter. 79C)	1	14	2	4	5	6			1	1 73
Dilatation, chronic cardiac (Class II, Inter. 79C)		3	5	2	2		1		3	243
Dilatation of stomach, acute (Class III, Inter. 13)		1				1				0
Diphtheria (Class VIII, Inter. 9)	18	372	283	28	174	20		1	138	1211,600
Diverticulitis (Class III, Inter. 110B)		1	2		1	1			1	5
Diverticulum of intestines, ac- quired (Class III, Inter. 110B)		1								1 27
Dysentery (Class III, Inter. 110B)	1	23	11	22	5				7	1 297
Dysentery, bacillary (Class IX, Inter. 14A)		6	5	4	3				2	2 71
Dysentery, entamebic (Class IX, Inter. 14C)	4	25	28	24	7		3		18	5 1,327
Dysentery, unspecified (Class XIII, Inter. 14D)	4	110	53	113	8	3	1	1	37	4 1,700



TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1920—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>DISEASES—Continued.</b>											
Dysidrosis (Class XIX, Inter. 145C).....		3	1	2					1	1	43
Ecthyma (Class XIX, Inter. 145C).....		6	3	5	2				2		81
Eczema (Class XIX, Inter. 145C).....	15	162	80	157	19		4	1	59	17	4,687
Edema of lung (Class XVIII, Inter. 94).....		2			2						0
Elephantiasis, nonfilarial (Class XIV, Inter. 145C).....		1	1		1		1				51
Embolism (Class II, Inter. 82).....		2	3		2	1			2		70
Emphysema, pulmonary (Class XVIII, Inter. 97).....		1	2	1	1				1		24
Encephalitis, acute (Class XVII, Inter. 60).....	5	11	13	10	7	4	1		5	2	910
Encephalitis, epidemic (lethargic) (Class XIII, Inter. 19).....	1	17	24	6	13	2	2		16	3	1,397
Endocarditis, acute (Class II, Inter. 78).....	3	33	25	7	24	5	2		20	3	1,613
Endocarditis, chronic (Class II, Inter. 79B).....	5	45	22	17	6	1	22		19	7	1,707
Enteritis, acute (Class III, Inter. 105B).....	6	557	130	500	56				74	3	2,773
Enteritis, chronic (Class III, Inter. 105B).....	3	6	7	7	3				4	2	330
Enterocolitis (Class III, Inter. 105B).....	3	145	27	147	6			1	20	1	934
Epididymitis, acute (nonvenereal) (Class VII, Inter. 127).....	5	141	60	141	16				46	3	1,856
Epididymitis, chronic (nonvenereal) (Class VII, Inter. 127).....		17	11	15	5				8		506
Epilepsy (Class XVII, Inter. 69).....	21	291	298	42	75		229	5	220	39	8,738
Epilepsy, Jacksonian (Class XVII, Inter. 74).....		10	15	6	5		7		7		346
Epistaxis (Class XVIII, Inter. 85).....		10	6	8	1		1		6		182
Epithelioma (Class XXIII, Inter. 39-45).....		2	2	2	1				1		41
Erysipelas (Class XIII, Inter. 18).....	6	79	56	71	26				42	2	1,862
Erythema multiforme (Class XIX, Inter. 145C).....	1	14	14	17	5				7		297
Erythema nodosum (Class XIX, Inter. 145C).....		2	2	2	1				1		27
Erythema scarlatiniforme (Class XIX, Inter. 145C).....		2		2							29
Erythema simplex (Class XIX, Inter. 145C).....		14	8	14	4				4		108
Erythrasma (Class XXII, Inter. 28B).....		1		1							17
Erythromelalgia (Class XXI, Inter. 142).....		1		1							6
Esophagitis (Class III, Inter. 101).....		1	1	1			1				35
Eustachian salpingitis, acute (Class V, Inter. 76).....	1	3	6	4	3				2	1	166
Eustachian salpingitis, chronic (Class V, Inter. 76).....		12	22	7	8		5		14		428
Exophthalmic goiter (Class IV, Inter. 51).....	4	25	34	10	10		14	1	25	3	1,964
Favus (Class XXII, Inter. 25B).....		13	3	11			1		4		210
Fermentation, gastric (Class III, Inter. 103).....		6	4	6	1				3		66
Fermentation, intestinal (Class III, Inter. 105B).....	1	6	1	7					1		123
Fever of unknown cause (Class XIII, Inter. 189A).....	1	128	15	128	4				12		592
Fibroma (Class XXIII, Inter. 46).....	2	13	9	14	3		1		5	1	432
Filariasis (Class X, Inter. 19).....		6	8	14							151
Fissure of anus (Class III, Inter. 110A).....		12	10	9	3					2	233
Fissure of skin (Class XIX, Inter. 145C).....		4	1	4					1		10
Fistula, fecal (Class III, Inter. 110A).....	4	2	4	5	1		1		2	1	700
Fistula in ano (Class III, Inter. 110A).....	10	59	80	66	10		3		64	6	3,113
Fistula in bladder (Class VII, Inter. 125).....		1	2		1				1	1	64
Fistula of urethra (Class VII, Inter. 125).....	1	4	5	3	1		1		5		314
Fistula, recto-urethral (Class VII, Inter. 125).....		1							1		0
Folliculitis decalvans (Class XIX, Inter. 145C).....	1	4	2	4	1			1	1		215

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1920—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>DISEASES—Continued.</b>											
Foreign body in auditory canal (Class V, Inter. 76).....		1	1		1				1		204
Foreign body in intestines (Class III, Inter. 110B).....		1	2	1	1				1		11
Functional derangement of liver (Class III, Inter. 115).....		8	2	8					2		212
Furunculosis (Class XIII, Inter. 143).....	21	798	192	822	32			1	121	30	7,918
Ganglion (Class XVI, Inter. 149).....		14	6	13	1				5	1	217
Gangrene (Class XXI, Inter. 142).....	2	1	2	1	2				1	1	365
Gangrene of lung (Class XVIII, Inter. 95).....		1			1						1
Gastritis, acute catarrhal (Class III, Inter. 103).....	8	283	108	288	44	1			62	4	2,072
Gastritis, chronic catarrhal (Class III, Inter. 103).....	13	128	172	119	69		6	1	101	17	5,083
Gastritis, acute phlegmonous (Class III, Inter. 103).....		9	7	10	3	1			2		379
Gastroduodenitis (Class III, Inter. 105B).....	1	33	28	29	9				19	5	762
Gastroenteritis (Class III, Inter. 105B).....	19	983	266	902	111	1			151	12	6,012
Gastroptosis (Class III, Inter. 103).....	1	11	20	11	9		1		10	1	683
Genu recurvatum (Class XVI, Inter. 147).....		3	2				3		2		99
Genu valgum (Class XVI, Inter. 147).....		2	2				2		2		47
Genu varum (Class XVI, Inter. 147).....		1					1				11
German measles (Class VIII, Inter. 19).....		120	122	99	56				72	15	1,973
Gingivitis (Class III, Inter. 99A).....	1	22	14	21	3				9	4	339
Glaucoma, acute (Class VI, Inter. 75C).....		1	2		1				2		57
Glaucoma, chronic (Class VI, Inter. 75C).....		3	3		1		1		3	1	281
Gloma (Class XXIII, Inter. 46).....	1	4	8	3	2	4			3	1	317
Glossitis, acute (Class III, Inter. 99B).....		2		2					1		12
Glycosuria (Class XXI, Inter. 50).....		3	1	3							53
Golter (Class IV, Inter. 88).....	12	67	80	32	18	1	42	3	59	7	3,180
Gonocystitis, chronic (nonvenereal) (Class VII, Inter. 127).....		1		1							128
Gonococcus infection of conjunctiva (Class XII, Inter. 38B).....		13	14	9	3				12	3	330
Gonococcus infection of joints (Class XII, Inter. 38B).....	24	99	168	94	42		27	6	97	25	6,455
Gonococcus infection of lymph node (Class XII, Inter. 38B).....	4	67	73	81	15			2	40	6	2,089
Gonococcus infection of urethra (Class XII, Inter. 38B).....	372	10,237	3,669	11,226	561		45	75	2,088	308	92,835
Gonococcus infection, unqualified (Class XII, Inter. 38B).....	72	724	713	939	112	2	5	9	379	63	21,145
Gout, acute (Class XXI, Inter. 48C).....		4	4	1	3				3	1	112
Hallux valgus (Class XVI, Inter. 149).....	2	22	22	16	8		3		16	3	1,100
Hammer toe (Class XVI, Inter. 149).....	1	54	41	43	2		11		35	5	1,356
Hay fever (Class XVIII, Inter. 98).....		2		2							4
Headache (Class XXI, Inter. 189A).....	2	21	6	20	5		1		4		112
Heart block (Class II, Inter. 85).....		3	3	2	1		1		2		183
Hematomyelia (Class XVII, Inter. 63).....			1				1				267
Hematuria, renal (Class VII, Inter. 122).....	2	10	16	11	7				9	1	557
Hemianopsia (Class VI, Inter. 75C).....		2	2						3	1	38
Hemiplegia, old (Class XVII, Inter. 66).....	3	7	5		1		8		4	2	988
Hemoglobinuria (Class VII, Inter. 122).....		1		1							3
Hemoglobinuric fever (Class XIII, Inter. 19).....		13	28	9	2	2			25	3	770
Hemophilia (Class I, Inter. 98).....	1	4	3	3	1		2		2		214
Hemoptysis (Class XVIII, Inter. 98).....		7	16	9	5		1		7	1	370
Hemorrhage, intestinal (Class III, Inter. 110B).....		2	2	1					2	1	45
Hemorrhage into cerebrum (Class XVII, Inter. 64).....	3	10	18	6	8	3			11	3	465

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1920—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>DISEASES—Continued.</b>											
Hemorrhage into pons (Class XVII, Inter. 64).....	1					1					14
Hemorrhage into retina (Class VI, Inter. 75C).....		1	3		1		1		2		68
Hemorrhage, subdural (Class XVII, Inter. 64).....		1	2	1	1				1		68
Hemorrhage under conjunctiva, nontraumatic (Class VI, Inter. 75C).....		3		3							21
Hemorrhoids (Class III, Inter. 53).....	51	568	481	552	75		3	2	429	39	14,161
Hernia, epigastric (Class XX, Inter. 109).....	2	4	4	5	1				3	1	216
Hernia, femoral (Class XX, Inter. 109).....		14	10	9	4		4		7		301
Hernia, inguinal (Class XX, Inter. 109).....	97	867	862	765	128		82	9	749	93	34,751
Hernia, internal (Class XX, Inter. 109).....	1	1			1				1		18
Hernia of muscle, fascia, tendon or sheath (Class XVI, Inter. 149).....		7	2	4			4		1		387
Hernia, umbilical (Class XX, Inter. 109).....		12	10	7	1		3		8	3	355
Hernia, ventral (Class XX, Inter. 109).....	3	40	45	23	2		9	1	40	3	1,581
Herpes (Class XIX, Inter. 145C).....	1	51	18	50	5				12	3	708
Hiccup (Class XVII, Inter. 74).....		2	1	2					1		18
Hodgkin's disease (Class XIV, Inter. 53A).....	1			1							182
Hordeolum (Class VI, Inter. 75C).....	1	44	12	46	1				9	1	244
Hydrocele of spermatic cord (Class VII, Inter. 127).....	1	25	21	22	3		1		18	3	708
Hydrocele of tunica vaginalis (Class VII, Inter. 127).....	5	60	74	55	15		5	2	54	8	1,872
Hydronephrosis (Class VII, Inter. 122).....		5	8	2	4		2		5		320
Hyperesthesia of retina (Class VI, Inter. 75C).....		1	2	1	1				1		12
Hyperchylia, gastric (Class III, Inter. 103).....	2	8	15	10	5				8	2	451
Hyperemia of conjunctiva (Class VI, Inter. 75C).....		3	3	5	1						62
Hyperidrosis (Class XIX, Inter. 145C).....	2	3		5							37
Hypermetropia (Class VI, Inter. 75C).....	4	117	86	97	35		17		52	6	1,731
Hypertrophy of bone (Class XVI, Inter. 146).....	5	37	29	31	5		4		27	4	1,057
Hypertrophy of heart (Class II, Inter. 75C).....	1	4					5				163
Hypertrophy of mammary gland (Class XXI, Inter. 133).....		3	1	2					1	1	34
Hypertrophy of tonsil (Class III, Inter. 100).....	36	1,084	662	1,015	129		2	7	590	39	20,209
Hypochohydria (Class III, Inter. 103).....	2	10	19	9	10		1		10	1	418
Hypochondriasis (Class XVII, Inter. 68).....		6	11	3	4		2		7	1	210
Hypopyon (Class VI, Inter. 95C).....	1			1							5
Hysteria (Class XVII, Inter. 73A).....	10	136	187	102	72		44	1	101	13	4,578
Ichthyosis (Class XIX, Inter. 145C).....		4	6	2	1		2		4	1	127
Imbeddity (Class XV, Inter. 74).....	2	6	3	1	2		6		2		424
Impacted feces (Class III, Inter. 100B).....		2	4	2	2				2		11
Impetigo contagiosa (Class XIX, Inter. 145C).....	4	121	53	120	10		1	2	42	3	1,676
Impetigo herpetiformis (Class XIX, Inter. 145C).....		1		1							5
Impetigo simplex (Class XIX, Inter. 145C).....		26	11	25	1				10	1	281
Impotence (Class VII, Inter. 127).....		1	2	1	1				1		7
Incontinence of urine (Class VII, Inter. 124).....	13	144	143	73	25		65	2	115	20	4,494
Inflammation of salivary gland (Class III, Inter. 99B).....		4	7	3	5				3		329
Influenza (Class VIII, Inter. 10).....	54	9,818	6,216	9,068	1,585	278	4	14	5,079	60	120,655
Ingrowing nail (Class XIX, Inter. 145C).....	4	316	76	312	15				58	11	4,098
Insomnia (Class XXI, Inter. 139A).....		2		2							17
Insufficiency of ocular muscle (Class VI, Inter. 75C).....	5	34	55	25	9		17		3	5	1,893

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1920—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>DISEASES—Continued.</b>											
Intertrigo (Class XIX, Inter. 145C).....		8	3	9	1				1		168
Iridochoroiditis (Class VI, Inter. 75C).....	1	1	1	1			1		1		66
Iridocyclitis (Class VI, Inter. 75C).....	1	4	3	2	3		1		2		176
Iritis (Class VI, Inter. 75C).....	5	71	73	64	23			1	57	4	2,384
Jaundice, acute infective (Weill's disease) (Class XIII, Inter. 111).....		2		2							89
Keratitis (Class VI, Inter. 75C).....	4	37	42	28	10		6	1	32	6	2,260
Keratitis, phlyctenular (Class VI, Inter. 75C).....		6	12	4	7		1		6		97
Keratoiritis (Class VI, Inter. 75C).....		2		1	1						14
Keratoeis (Class XIX, Inter. 145C).....	1	2	1	2			1		1		35
Laryngitis, acute (Class XVIII, Inter. 87).....	1	186	48	179	10			1	41	4	1,378
Laryngitis, chronic (Class XVIII, Inter. 87).....	1	14	14	7	7		5		10		362
Leprosy (Class XIII, Inter. 17).....	2	1	2				3		2		354
Leukemia (Class I, Inter. 53C).....		2	5		2	1			3	1	160
Leukoderma (Class XIX, Inter. 145C).....		1	1						2		17
Leukoma (Class VI, Inter. 75C).....	1	9	10	1	4		9		6		317
Lichen, planus (Class XIX, Inter. 145C).....		4	3	4	1				2		119
Lipoma (Class XXIII, Inter. 46).....	16	11	11	4					12		448
Locomotor ataxia (Class XVII, Inter. 62).....	4	4	11	3	2		2		9	3	1,161
Loose body in joint (Class XVI, Inter. 147).....		17	21	9	3		5		17	4	1,008
Loss of substance of (bone or cartilage) (Class XVI, Inter. 146).....	1	29	28	8	8		18		21	3	1,612
Lupus, erythematosus (Class XIX, Inter. 145C).....		3	5	2	1				4	1	319
Lymphadenitis, acute (Class XIV, Inter. 84).....	50	693	357	682	103			3	259	53	19,493
Lymphadenitis, chronic (Class XIV, Inter. 84).....	6	52	63	42	18		5	1	47	8	2,709
Lymphangioma (Class XXIII, Inter. 46).....		1	1		1				1		8
Lymphangitis (Class XIV, Inter. 84).....	6	101	41	101	11				32	4	1,613
Lymphoma (Class XXIII, Inter. 46).....		1	2	1	1				1		615
Malaria (Class X, Inter. 4).....	103	3,253	1,844	4,062	267	4	5	4	777	81	40,327
Malformations, congenital (Class XXI, Inter. 150).....	4	61	65	23	19		43		39	6	1,808
Malingering (Class XXI, Inter. 189B).....	1	5	6	6	4				2		78
Mallet finger (Class XVI, Inter. 149).....		1					1				25
Malnutrition (Class XXI, Inter. 189A).....		23		5	1		17				267
Mastoiditis, acute (Class V, Inter. 146).....	9	136	53	93	44	2	1	1	35	22	7,148
Mastoiditis, chronic (Class V, Inter. 146).....	14	43	21	35	11		13		16	5	2,965
Masturbation (Class VII, Inter. 74).....		1	2		1				2		25
Measles (Class VIII, Inter. 6).....	40	1,604	1,434	1,232	339	26		3	1,264	304	34,546
Melancholia, involutional (Class XV, Inter. 68).....	1	3	3	1	4				2		68
Meningitis, cerebral (Class XVII, Inter. 61).....	1	5	4		2	5	1		2		94
Meningitis, cerebrospinal (Class XIII, Inter. 61).....	7	32	35	16	15	16	2	1	19	5	1,940
Meningitis, spinal (Class XVII, Inter. 61).....		1				1					2
Metatarsalgia (Class XVI, Inter. 149).....	1	10	15	7	5		2		10	2	326
Migraine (Class XXI, Inter. 74).....		40	14	37	6		1		9	1	323
Millaria (Class XIX, Inter. 145C).....		14	4	8	1				9		117
Moron (Class XV, Inter. 74).....	2	116	23	21	8		93	1	14	2	1,386
Mumps (Class VII, Inter. 19).....	308	3,915	3,242	3,368	310			10	3,167	610	73,669
Myelitis, disseminated (Class XVII, Inter. 63).....	1	2	2	1	1	1	1		1		304
Myelitis, transverse (Class XVII, Inter. 63).....	1	1	1				2		1		493
Myocarditis, acute (Class II, Inter. 78).....	1	19	9	9	9	2	1		6	2	642
Myocarditis, chronic (Class II, Inter. 79C).....	8	92	87	28	29	3	55		56	16	4,669
Myopia (Class VI, Inter. 75C).....		58	38	40	8		22		23	3	1,152

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1920—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>DISEASES—Continued.</b>											
Myositis, acute (Class XVI, Inter. 149).....	2	116	47	115	21				27	2	1,162
Myositis, chronic (Class XVI, Inter. 149).....	2	24	33	21	12		4		18	4	1,291
Myositis, progressive, ossifying (Class XVI, Inter. 149).....			1	1							17
Myositis, traumatic, ossifying (Class XVI, Inter. 149).....		3	1	1	1		1		1		174
Myringitis, acute (Class V, Inter. 76).....		18	6	16	2				5	1	112
Myringitis, chronic (Class V, Inter. 76).....		3	9	5	4				3		63
Nausea marina (Class XXI, Inter. 189A).....	3	30	26	34	5		3		17		666
Necrosis (Class XVI, Inter. 146).....	1	8	10	4	2		2		9	2	498
Nephralgia (Class VII, Inter. 122).....		4	7	6	2				3		147
Nephritis, acute (Class VII, Inter. 119).....	8	64	54	42	28	5	3	1	38	9	3,245
Nephritis, chronic, interstitial (Class VII, Inter. 120).....	10	46	64	23	18	5	14		53	7	3,015
Nephritis, chronic, parenchymatous (Class VII, Inter. 120).....	10	50	70	27	16	1	23	1	47	15	3,934
Nephrothiasis (Class VII, Inter. 123).....	7	45	56	45	21		4		34	7	2,570
Nephropotosis (Class VII, Inter. 122).....	3	2	10	5	3				6	1	448
Nervous dyspepsia (Class III, Inter. 103).....		8	8	7	4				5		61
Neuralgia (Class XVII, Inter. 73B).....	2	108	61	107	24		2		34	4	1,627
Neurasthenia (Class XVII, Inter. 74).....	34	229	369	165	110		78	1	251	27	11,968
Neuritis (Class XVII, Inter. 73B).....	21	149	154	129	42		21	1	110	21	7,840
Neuritis, multiple (Class XVII, Inter. 73B).....		8	7	4	3		3		4	1	441
Neuritis, optic (Class VI, Inter. 75C).....	1	23	25	6	8		12		18	5	912
Neuroma (Class XXIII, Inter. 46).....			3				1		2		209
Neuroretinitis (Class VI, Inter. 75C).....		16	19	11	4		4		14	2	988
Neurosis, intestinal (Class III, Inter. 110B).....		6	7	3	3		1		3	3	207
Neurosis, occupational (Class XVII, Inter. 74).....		2	5	2	1		1		3		74
Neurosis of bladder (Class VII, Inter. 124).....	6	61	52	19	17		47		34	2	2,767
Neurosis, traumatic (Class XVII, Inter. 74).....		16	21	3	8		9	1	12	4	857
Neurosis, war (Class XVII, Inter. 74).....	1	21	35	6	12		12	1	24	2	1,385
Nevus (Class XIX, Inter. 150).....	1	3	1	3	1				1		233
No disease (Class XXI, Inter. 189A).....	73	1,649	915	1,597	494			10	482	54	23,971
Notalgia (Class XXI, Inter. 68).....		2	1	1	1				1		16
Nystagmus (Class VI, Inter. 75C).....		6	6	1	3		3		4	1	154
Obesity (Class XXI, Inter. 55).....		7	3	2	1		5		2		187
Obstruction, acute intestinal (Class III, Inter. 109).....		12	15	6	8	4			8	1	447
Obstruction, chronic intestinal (Class III, Inter. 109).....		1			1						3
Oncchauxis (Class XIX, Inter. 145C).....		2		2							24
Oncchia (Class XIX, Inter. 145C).....	1	9	2	9	2				1		98
Oncychoma (Class XIX, Inter. 145C).....		3		2	1						75
Opacity of vitreous humor (Class VI, Inter. 75C).....		1	1		1					1	12
Ophthalmoplegia (Class VI, Inter. 75C).....		3	5	2	1				5		165
Orchitis, acute (nonvenereal) (Class VII, Inter. 127).....	8	219	78	215	24		1		58	7	3,483
Orchitis, chronic (nonvenereal) (Class VII, Inter. 127).....	3	23	32	21	8		1		24	4	920
Ossification of cartilage, unqualified (Class XVI, Inter. 149).....		1	2	1	1				1		2
Osteitis deformans (Class XVI, Inter. 146).....		2	3				1		3	1	78
Osteoarthritis, hypertrophic (Class XXI, Inter. 36B).....		2	3	1	2		1		1		183
Osteoma (Class XXIII, Inter. 46).....	3	21	33	21	9		4	1	19	3	1,703
Osteomyelitis, acute (Class XVI, Inter. 146).....	4	13	22	12	6				16	5	1,436

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1920—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont. Days.
<b>DISEASES—Continued.</b>										
Osteomyelitis, chronic (Class XVI, Inter. 146).....	16	39	28	29	12		14		31	7 2,223
Otitis externa (Class V, Inter. 76).....	7	189	109	187	35				76	6 2,153
Otitis interna, acute (Class V, Inter. 76).....	2	6	8	4	6				6	299
Otitis interna, chronic (Class V, Inter. 76).....	2	15	6	6	2		4		9	2 422
Otitis media, acute (Class V, Inter. 76).....	37	789	455	651	173		3	2	405	45 16,265
Otitis media, chronic (Class V, Inter. 76).....	71	795	802	516	133		292	5	636	86 28,896
Pachymeningitis, cerebral (Class XVII, Inter. 61).....	1	2	3		2	2			2	157
Palpitation, cardiac (Class II, Inter. 85).....		11	8	9	4		1		4	1 399
Pancreatitis, chronic (Class III, Inter. 118).....			1	1						3
Panophthalmitis (Class VI, Inter. 75C).....		1		1						12
Papilloma (Class XXIII, Inter. 46).....	4	19	15	19	3		1		12	3 962
Pappataci fever (Class X, Inter. 19).....		11		11						37
Paralysis, acute ascending (Class XVII, Inter. 63).....	2	2			1	2			1	12
Paralysis, agitans (Class XVII, Inter. 63).....		1	1		1					1 33
Paralysis of nerve (Class XVII, Inter. 66).....	15	52	69	39	18		14	2	53	10 5,161
Paralysis of ocular muscle (Class VI, Inter. 75C).....	1	6	6	3	1		3		5	1 326
Paralysis of vocal cords (Class XVIII, Inter. 74).....	1	4	5				6		4	215
Paralysis, muscle, ischemic (Class XVI, Inter. 149).....		1		1						26
Paramyoclonus multiplex (Class XVII, Inter. 74).....		1	3		2		1		1	128
Paranoia (Class XV, Inter. 68).....	2	7	24	2	4		5		21	1 727
Paranoiac state (Class XV, Inter. 68).....	2	4	12		5		5		8	1 436
Paraphimosis (Class VII, Inter. 127).....	2	18	10	17	4				8	1 291
Paraplegia, ataxic (Class XVII, Inter. 66).....	2	1		1			1		1	156
Paratyphoid fever (Class IX, Inter. 1).....	7	10	6	5	1				5	265
Pediculosis (Class XXII, Inter. 145C).....	9	4	10	2					1	25
Pemphigus (Class XIX, Inter. 145C).....	8	1	6	1					1	1 166
Perforated nasal septum (Class XVIII, Inter. 86).....	7	4	5	1			1		3	1 326
Pericarditis (Class II, Inter. 77).....	2	19	12	9	8		6		10	1,036
Pericardium, adherent (Class II, Inter. 77).....		1	2		1	1			1	123
Perichondritis of auricle (Class V, Inter. 76).....		2	2	2	1				1	12
Perihepatitis (Class III, Inter. 115).....				1						26
Periostitis, acute (Class XVI, Inter. 146).....	6	34	23	37	7				17	2 879
Periostitis, chronic (Class XVI, Inter. 146).....	2	36	50	28	9		11	2	35	3 2,119
Peritonitis, acute general (Class III, Inter. 117).....		4	7		4	4			3	16
Peritonitis, chronic, local (Class III, Inter. 117).....		1							1	15
Pes cavus (Class XVI, Inter. 149).....		8	5	1			6		5	1 244
Pes planus (Class XVI, Inter. 149).....	34	609	496	232	54		400	3	402	45 18,946
Pharyngitis, acute (Class III, Inter. 100).....	6	889	152	869	49	1			102	26 4,415
Pharyngitis, chronic (Class III, Inter. 100).....		8	4	5	3				3	1 172
Phimosis (Class VII, Inter. 127).....	8	191	73	188	16			1	61	6 3,227
Phlebitis (Class II, Inter. 83).....	2	38	39	32	13		6		22	6 1,501
Pityriasis rosea (Class XIX, Inter. 145C).....		21	13	18	5				7	4 645
Pityriasis simplex (Class XIX, Inter. 145C).....	1	1	2	2	1				1	66
Pityriasis versicolor (Class XXII, Inter. 25B).....		7	7	6	3			1	4	108
Pleurisy, acute fibrinous (Class XVIII, Inter. 93).....	21	325	187	297	83				129	19 7,312

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1920—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>DISEASES—Continued.</b>											
Pleurisy, chronic fibrinous (Class XVIII, Inter. 93).....	7	54	44	38	16	.....	9	1	31	10	2,072
Pleurisy, serofibrinous (Class XVIII, Inter. 93).....	14	87	92	63	57	.....	2	.....	60	11	4,790
Pleurisy, suppurative (Class XVIII, Inter. 93).....	37	227	89	108	94	.....	61	1	65	24	29,242
Pleuritic adhesions (Class XVIII, Inter. 93).....	.....	29	29	15	11	.....	11	.....	17	4	876
Pneumonia, broncho (Class VIII, Inter. 91).....	18	621	242	334	327	20	.....	3	159	38	20,074
Pneumonia, lobar (Class VIII, Inter. 92).....	59	556	487	326	295	71	2	1	322	84	18,622
Pneumonoconiosis (Class XVIII, Inter. 93).....	.....	1	3	1	2	.....	1	.....	.....	.....	86
Pneumothorax (Class XVIII, Inter. 93).....	1	1	1	1	.....	.....	1	.....	1	.....	49
Poliomyelitis, acute anterior (Class VIII, Inter. 63).....	1	.....	1	.....	1	.....	.....	.....	1	.....	83
Poliomyelitis, chronic anterior (Class XIII, Inter. 63).....	.....	1	8	1	1	.....	1	.....	1	.....	96
Poliomyelitis, acute, bulbar (Class VIII, Inter. 63).....	.....	1	.....	.....	.....	1	.....	.....	.....	.....	5
Polypus, nasal (Class XVIII, Inter. 46).....	1	28	26	20	9	.....	.....	.....	23	2	627
Prosthyopia (Class VI, Inter. 45C).....	3	.....	.....	2	.....	.....	1	.....	.....	.....	5
Proctitis (Class III, Inter. 110A).....	13	13	8	5	.....	.....	.....	1	9	3	328
Prolapse of rectum (Class III, Inter. 110B).....	.....	7	14	2	4	.....	2	.....	11	2	189
Prostatitis, acute (nonvenereal) (Class VII, Inter. 126).....	3	10	12	10	5	.....	.....	.....	8	2	258
Prostatitis, chronic (nonvenereal) (Class VII, Inter. 126).....	2	12	10	11	6	.....	.....	.....	6	1	229
Pruritus (Class XIX, Inter. 145C).....	.....	3	5	4	1	.....	.....	.....	3	.....	88
Psoriasis (Class XIX, Inter. 145C).....	1	36	21	23	2	.....	10	1	18	4	1,867
Psychasthenia (Class XV, Inter. 66).....	8	30	74	22	19	.....	13	2	50	6	2,477
Psychoneurosis (Class XV, Inter. 66).....	3	31	45	9	12	.....	14	.....	34	10	1,766
Psychosis, due to organic brain disease (Class XV, Inter. 74).....	.....	2	7	1	.....	.....	.....	.....	6	2	381
Psychosis, epileptic (Class XV, Inter. 66).....	.....	2	7	.....	3	.....	2	.....	4	.....	157
Psychosis (exhaustive, infective and toxic) (Class XV, Inter. 66).....	3	9	27	8	12	1	2	1	13	2	814
Psychosis, hysterical (Class XV, Inter. 73A).....	1	10	7	4	1	.....	5	.....	6	2	240
Psychosis, intoxication (Class XV, Inter. 68).....	.....	7	12	6	5	.....	.....	.....	7	1	104
Psychosis, manic depressive (Class XV, Inter. 68).....	6	24	81	4	15	.....	18	2	63	9	3,472
Psychosis, senile (Class XV, Inter. 154A).....	1	1	2	1	.....	.....	.....	.....	2	1	172
Psychosis, traumatic (Class XV, Inter. 66).....	.....	5	9	1	2	.....	2	.....	9	.....	202
Psychosis, unclassified (Class XV, Inter. 68).....	5	38	76	9	20	1	11	2	64	12	2,597
Pterygium (Class VI, Inter. 75C).....	1	63	65	57	12	.....	.....	.....	54	6	1,523
Purpura (Class I, Inter. 55).....	1	1	.....	2	.....	.....	.....	.....	.....	.....	12
Purpura, hemorrhagic (Class I, Inter. 55).....	1	2	2	2	1	1	.....	.....	1	.....	88
Pyelitis (Class VII, Inter. 122).....	8	35	49	36	16	.....	2	.....	32	6	1,820
Pyelonephritis (Class VII, Inter. 122).....	2	9	13	7	3	1	2	.....	8	3	483
Pyosplenitis (Class III, Inter. 83).....	.....	1	.....	.....	1	.....	.....	.....	.....	.....	34
Pyloric, incontinence (Class III, Inter. 103).....	.....	2	.....	2	.....	.....	.....	.....	.....	.....	44
Pylorospasm (Class III, Inter. 103).....	.....	.....	2	1	1	.....	.....	.....	.....	.....	14
Pyorrhoæa, alveolaris (Class III, Inter. 99A).....	6	40	31	33	11	.....	9	.....	22	2	1,333
Redundant prepuce (Class VII, Inter. 127).....	20	741	200	737	25	.....	.....	2	177	20	9,820
Retention cyst (Class XXIII, Inter. 46).....	2	17	7	19	1	.....	.....	.....	6	.....	244
Retinitis (Class VI, Inter. 75C).....	.....	25	26	8	10	.....	11	1	18	3	1,077
Rheumatic fever, acute (Class XIII, Inter. 47).....	68	631	530	558	190	2	2	4	403	70	24,903
Rheumatic fever, subacute (Class XIII, Inter. 47).....	7	109	76	107	20	.....	5	.....	55	5	3,642

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1920—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>DISEASES—Continued.</b>											
Rheumatism, chronic articular (Class XXI, Inter. 48B).....	33	244	267	207	69		36	3	199	40	13,128
Rheumatism, muscular (Class XXI, Inter. 149).....	18	419	246	415	96		9	2	144	17	8,546
Rhinitis, acute (Class XVIII, Inter. 86).....	6	806	141	797	58			1	94	3	3,358
Rhinitis, atrophic (Class XVIII, Inter. 86).....	5	17	9	8	4		9		7	3	493
Rhinitis, hypertrophic (Class XVIII, Inter. 86).....	1	36	41	34	13				29	2	979
Rumination (Class III, Inter. 103).....		1	4	1	2				2		78
Sarcoma (Class XXIII, Inter. 39-45).....	4	8	15	3	4	6	2		10	2	963
Scabies (Class XXII, Inter. 145B).....	80	1,417	647	1,429	95		1	13	530	76	23,911
Scarlet fever (Class VIII, Inter. 7).....	79	323	278	272	144	11		3	192	58	12,598
Schistosomiasis, intestinal (Class XXII, Inter. 107).....			2	1					1		7
Scleritis (Class VI, Inter. 75C).....	1	3	4	4			1		3		157
Sclerosis, disseminated (Class XVII, Inter. 63).....		4	2	1			2		2	1	122
Sclerosis, lateral (Class XVII, Inter. 63).....			4				1		3		264
Seborrhea (Class XIX, Inter. 145C).....		3	1	2	1				1		44
Senility (Class XXI, Inter. 154B).....	1								1		29
Septicemia (Class XIII, Inter. 20).....	4	24	13	5	26				8	2	1,022
Shock (Class XXI, Inter. 189A).....		3	1	2	1				1		4
Sinus (Class XXI, Inter. 145C).....	2	19	26	17	7		2	1	18	2	1,088
Sinusitis, ethmoidal (Class XVIII, Inter. 146).....	4	24	25	20	11		3		16	3	1,338
Sinusitis, frontal (Class XVIII, Inter. 146).....	11	226	170	208	51		9		126	12	5,382
Sinusitis, maxillary (Class XVIII, Inter. 146).....	6	80	37	69	17		3		29	5	3,042
Sinusitis, sphenoidal (Class XVIII, Inter. 146).....	2	2		2							21
Smallpox (Class VIII, Inter. 5).....	2	25	18	19	8	1			14	3	1,045
Somnambulism (Class XVII, Inter. 74).....	1	7	10	2	2		5		9		189
Spasm habit (Class XVII, Inter. 74).....		1		1							2
Spermatocele (Class VII, Inter. 127).....		1	2		1				1	1	27
Spermatorrhea (Class VII, Inter. 127).....		1	1	1					1		23
Splanchnoptosis (Class III, Inter. 110B).....		6	14	4	4		1		9	2	494
Splenitis, acute (Class IV, Inter. 116).....	1			1							16
Splenitis, chronic interstitial (Class IV, Inter. 116).....	1			1							2
Sprue (Class III, Inter. 110B).....		1	3						3	1	94
Spur on nasal septum (Class XVIII, Inter. 86).....		28	11	16	2		2		14		306
Stammering (Class XVII, Inter. 74).....	2	7	6	2	2		5		4	2	355
Status lymphaticus (Class XIV, Inter. 84).....		1				1					9
Stenosis of gall-duct (Class III, Inter. 115).....		1	1		1				1		7
Stenosis of nasal duct (Class VI, Inter. 75C).....		3	3	2			1		3		125
Stenosis of punctum lacrimale (Class VI, Inter. 75C).....	1			1							43
Stomatitis (Class III, Inter. 99B).....	1	37	21	33	6				18	2	635
Stricture of intestine (Class III, Inter. 109).....		1	2	1					1	1	23
Stricture of rectum (Class III, Inter. 110B).....		1	1	1					1		109
Stricture of ureter (Class VII, Inter. 122).....		1					1				73
Stricture of urethra (Class VII, Inter. 127).....	5	30	28	30	10		2		18	2	969
Strongyloides, intestinal (Class XXII, Inter. 107).....		4	4	3	1				3	1	83
Stuttering (Class XVII, Inter. 74).....	19	10	2	3			16		7	1	245
Sudamina (Class XIX, Inter. 145C).....	5	1	4	1					1		57
Suppression of urine (Class VII, Inter. 124).....		2		2							16
Synechia (Class VI, Inter. 75C).....		1		1							13
Syphilis (Class XII, Inter. 37).....	289	2,470	2,519	2,855	695	9	79	33	1,376	231	77,693



TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1920—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>DISEASES—Continued.</b>											
Tachycardia (Class II, Inter. 85).....	7	71	60	49	22		17		46	4	2,168
Talipes (Class XVI, Inter. 149).....		6	8	1	1		5		6	1	263
Teniasis (Class XXII, Inter. 107).....	2	56	48	62	7				36	1	1,006
Tenosynovitis (Class XVI, Inter. 149).....	4	36	27	32	10		2		18	5	631
Teratoma (Class XXIII, Inter. 46).....		6	11	5	5				7		211
Thrombosis (Class II, Inter. 82).....		11	7	6	2	1			5	4	538
Thrush (Class XXII, Inter. 99B).....	2	2	2	2	2				1		33
Thyroiditis, acute (Class IV, Inter. 88).....		1						1			10
Thyroiditis, chronic (Class IV, Inter. 88).....		9	14	4	3		4		12		580
Tic, convulsive (Class XVII, Inter. 74).....		2	2		2		1		1		59
Tic, psychical (Class XVII, Inter. 74).....		2					2				39
Tonsillitis, acute follicular (Class XVIII, Inter. 100).....	307	11,951	3,469	11,523	864			11	2,940	389	87,151
Tonsillitis, chronic (Class XVIII, Inter. 100).....	31	842	467	782	132		1	1	395	29	15,668
Tracheitis (Class XVIII, Inter. 89).....		10	4	10	2				2		53
Trachoma (Class VI, Inter. 75B).....	4	14	19	5	5		9	1	12	5	872
Trichiniasis (Class XXII, Inter. 107).....		4	4	4	2				2		96
Trichophytosis (Class XXII, Inter. 145A).....	6	215	78	214	30			2	46	7	2,742
Trichuriasis (Class XXII, Inter. 107).....		1	2	1	1				1		10
Trichuris trichiura (Class XXII, Inter. 107).....	1	7	4	8	1				3		199
Tuberculosis, abdominal (Class XI, Inter. 31).....		7	16	1	6	1	2		10	3	688
Tuberculosis, acute bronchopneumonic (Class XI, Inter. 29).....	5	3	4		2	1	3		5	1	594
Tuberculosis, acute general (Class XI, Inter. 29).....		3	5	1		2	1		3	1	226
Tuberculosis, acute pneumonic (Class XI, Inter. 29).....	17	9	6	1	13	2	3		11	2	1,450
Tuberculosis, acute pulmonary miliary (Class XI, Inter. 29).....	12	12	22	1	14	4	4		19	4	1,651
Tuberculosis, chronic pulmonary (Class XI, Inter. 28).....	552	555	1,248	62	291	65	600	5	967	365	153,313
Tuberculosis of bronchus (Class XI, Inter. 28).....	1		1			1				1	403
Tuberculosis of joint (Class XI, Inter. 33).....	11	13	21	3	10		8		15	9	3,330
Tuberculosis of larynx (Class XI, Inter. 28).....	3	1	1		1		2		2		154
Tuberculosis of pleura (Class XI, Inter. 28).....	6	1	3		2		3		4	1	839
Tuberculosis of spinal column (Class XI, Inter. 32).....	4	5	11	1	3	2	4		7	3	1,533
Tuberculosis, unqualified (Class XI, Inter. 34).....	16	25	36	8	19	3	13		23	11	4,134
Tuberculous meningitis (Class XI, Inter. 30).....		3	5		3	3			2		20
Typhoid fever (Class LX, Inter. 1).....	14	28	41	24	21	6			27	5	2,093
Ulcer of bladder (Class VII, Inter. 124).....		1	1	1	1						22
Ulcer of duodenum (Class III, Inter. 105A).....	11	28	48	24	18	2	2		32	9	2,963
Ulcer of eye and adnexa (Class VI, Inter. 75C).....	2	53	28	38	11		3		27	4	873
Ulcer of mouth (Class III, Inter. 99B).....		6	8	5	5				3	1	240
Ulcer of nasal passage (Class XVIII, Inter. 86).....	1	5	1	6					1		57
Ulcer of skin (Class XIX, Inter. 145C).....	26	147	90	154	20		1	2	68	18	5,750
Ulcer of stomach (Class III, Inter. 102).....	10	35	61	28	20	1	6		38	13	2,841
Ulceromembranous angina (Class III, Inter. 100).....	26	474	307	453	129				190	35	7,333
Uncinariasis (Class XXII, Inter. 106).....	5	733	1,279	1,151	32		1	2	829	2	4,086
Union of fracture faulty (Class XVI, Inter. 146).....	14	134	91	34	18	1	85	1	70	20	5,990
Ureteral colic (Class VII, Inter. 123).....		4		4							50
Urethritis, acute (nonvenereal) (Class VII, Inter. 125).....		22	15	23	6				9		350

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1920—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont. Days
<b>DISEASES—Continued.</b>										
Urethritis, chronic (nonvenereal) (Class VII, Inter. 125).....	2	10	7	9	5	.....	1	.....	4	374
Urticaria (Class XIX, Inter. 145C).....	.....	130	47	124	21	.....	1	.....	27	4,138
Vaccinia (Class XIII, Inter. 19).....	1	372	40	365	21	.....	.....	.....	20	8,146
Valvular disease, chronic cardiac (Class II, Inter. 79A).....	30	586	314	119	62	.....	447	3	240	52,730
Varicocele (Class VII, Inter. 88).....	33	550	465	505	71	.....	13	4	437	28,152
Varix (Class II, Inter. 88).....	12	97	121	99	15	.....	11	.....	96	9,483
Vertigo (Class XXI, Inter. 189A).....	.....	8	8	8	4	.....	.....	.....	4	50
Vomiting, recurrent (Class III, Inter. 103).....	.....	4	6	5	2	.....	.....	.....	3	180
Wart (Class XIX, Inter. 145C).....	42	32	40	8	.....	.....	.....	2	23	1,865
Whooping cough (Class VIII, Inter. 8).....	.....	7	6	6	3	.....	.....	.....	4	273
Yaws (Class XIII, Inter. 19).....	.....	2	2	2	1	.....	.....	.....	1	185
Yellow fever (Class X, Inter. 16).....	1	.....	.....	1	.....	.....	.....	.....	.....	7
Zoster (Class XVII, Inter. 145C).....	.....	18	5	18	1	.....	.....	.....	4	160
<b>FEMALE DISEASES.</b>										
Displacement of uterus, unquali- fied (Class XXIV, Inter. 130B).....	.....	1	.....	.....	.....	.....	.....	.....	1	21
Dysmenorrhea (Class XXIV, Inter. 130B).....	.....	2	.....	2	.....	.....	.....	.....	.....	16
Mastitis, chronic (Class XXIV, Inter. 133).....	.....	1	.....	1	.....	.....	.....	.....	.....	40
Menorrhagia (Class XXIV, Inter. 128).....	.....	1	.....	1	.....	.....	.....	.....	.....	5
Metrorrhagia (Class XXIV, Inter. 128).....	.....	1	.....	.....	.....	.....	.....	.....	1	70
Oophoritis, acute (Class XXIV, Inter. 132).....	.....	1	.....	1	.....	.....	.....	.....	.....	2
<b>INJURIES.</b>										
Abrasion, ankle, "L" (Class XXV, Inter. 186).....	.....	2	.....	2	.....	.....	.....	.....	.....	11
Abrasion, arm, "G-R" (Class XXV, Inter. 186).....	.....	.....	1	1	.....	.....	.....	.....	.....	3
Abrasion, elbow, "G-R" (Class XXV, Inter. 186).....	.....	1	.....	.....	.....	.....	.....	.....	1	0
Abrasion, elbow, "H" (Class XXV, Inter. 186).....	.....	1	.....	1	.....	.....	.....	.....	.....	11
Abrasion, eye and adnexa, "G" (Class XXV, Inter. 186).....	.....	1	.....	1	.....	.....	.....	.....	.....	3
Abrasion, eye and adnexa, "H" (Class XXV, Inter. 186).....	.....	1	.....	1	.....	.....	.....	.....	.....	3
Abrasion, eye and adnexa, "J" (Class XXV, Inter. 186).....	.....	1	.....	1	.....	.....	.....	.....	.....	5
Abrasion, eye and adnexa, "L" (Class XXV, Inter. 186).....	.....	2	4	3	1	.....	.....	.....	2	17
Abrasion, face, "G" (Class XXV, Inter. 186).....	.....	3	2	4	.....	.....	.....	.....	1	23
Abrasion, face, "H" (Class XXV, Inter. 186).....	.....	1	.....	1	.....	.....	.....	.....	.....	3
Abrasion, face, "J" (Class XXV, Inter. 186).....	.....	1	.....	1	.....	.....	.....	.....	.....	2
Abrasion, finger, "G" (Class XXV, Inter. 186).....	.....	1	.....	1	.....	.....	.....	.....	.....	8
Abrasion, finger, "H" (Class XXV, Inter. 186).....	.....	2	.....	2	.....	.....	.....	.....	.....	7
Abrasion, finger, "J" (Class XXV, Inter. 186).....	.....	1	.....	1	.....	.....	.....	.....	.....	5
Abrasion, finger, "L" (Class XXV, Inter. 186).....	.....	1	5	1	6	.....	.....	.....	1	53
Abrasion, foot, "H" (Class XXV, Inter. 186).....	.....	1	.....	1	.....	.....	.....	.....	1	6
Abrasion, foot, "J" (Class XXV, Inter. 186).....	.....	3	1	3	.....	.....	.....	.....	1	24
Abrasion, foot, "L" (Class XXV, Inter. 186).....	.....	22	3	22	1	.....	.....	.....	2	306
Abrasion, hand, "G" (Class XXV, Inter. 186).....	.....	2	.....	2	.....	.....	.....	.....	.....	21
Abrasion, hand, "H" (Class XXV, Inter. 186).....	.....	1	.....	1	.....	.....	.....	.....	.....	5
Abrasion, hand, "I" (Class XXV, Inter. 186).....	.....	2	.....	2	.....	.....	.....	.....	.....	51
Abrasion, hand, "L" (Class XXV, Inter. 186).....	.....	3	1	1	1	.....	.....	.....	1	6
Abrasion, head, "G" (Class XXV, Inter. 186).....	.....	4	3	4	1	.....	.....	.....	2	16

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1920—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Abrasion, head, "H" (Class XXV, Inter. 186)		1	1	1					1		4
Abrasion, hip, "G" (Class XXV, Inter. 186)		2	2	2	1				1		17
Abrasion, knee, "G" (Class XXV, Inter. 186)		15	1	14					2		66
Abrasion, knee, "J" (Class XXV, Inter. 186)		1		1							4
Abrasion, knee, "L" (Class XXV, Inter. 186)		1	1	2							45
Abrasion, leg, "G" (Class XXV, Inter. 186)		14	2	12					3	1	75
Abrasion, leg, "H" (Class XXV, Inter. 186)		1		1							9
Abrasion, leg, "L" (Class XXV, Inter. 186)		3	2	5							62
Abrasion, mouth, "I" (Class XXV, Inter. 186)		1		1							1
Abrasion, mouth, "L" (Class XXV, Inter. 186)		1		1							1
Abrasion, multiple, "G" (Class XXV, Inter. 186)		4	1	4					1		28
Abrasion, multiple, "H" (Class XXV, Inter. 186)		4	2	4					2		55
Abrasion, multiple, "L" (Class XXV, Inter. 186)		3	2	3	1				1		20
Abrasion, nose, "G" (Class XXV, Inter. 186)		1	2	1	1				1		20
Abrasion, penis, "L" (Class XXV, Inter. 186)		4	4	4	2				2		31
Abrasion, thigh, "G" (Class XXV, Inter. 186)		1		1							4
Abrasion, thigh, "H" (Class XXV, Inter. 186)		1		1							12
Abrasion, thigh, "L" (Class XXV, Inter. 186)		1		1							4
Abrasion, thorax, "G" (Class XXV, Inter. 186)		1		1							2
Abrasion, toe, "I" (Class XXV, Inter. 186)		2		2							8
Abrasion, toe, "J" (Class XXV, Inter. 186)		1		1							10
Abrasion, toe, "L" (Class XXV, Inter. 186)	1	5	1	6	1						44
Abrasion, unqualified, "L" (Class XXV, Inter. 186)		12		12							43
Avulsion, finger, "E" (Class XXV, Inter. 186)		1		1							13
Avulsion, finger, "H" (Class XXV, Inter. 186)	2	23	4	23					4	2	614
Avulsion, finger, "I" (Class XXV, Inter. 186)		12	1	13							146
Avulsion, finger, "L" (Class XXV, Inter. 186)		3		2					1		18
Avulsion, foot, "L" (Class XXV, Inter. 186)			1				1				7
Avulsion, hand, "H" (Class XXV, Inter. 186)	1			1							14
Avulsion, teeth, "H" (Class XXV, Inter. 186)		1	1	1					1		36
Avulsion, toe, "I" (Class XXV, Inter. 186)		1	1	1					1		103
Blood donor, "L" (Class XXV, Inter. 186)		2		2							8
Burn, abdomen, "L" (Class XXV, Inter. 186)	1	8	1	8					2		47
Burn, ankle, "F" (Class XXV, Inter. 186)			2	1				1			38
Burn, ankle, "L" (Class XXV, Inter. 186)		11	1	10					2		144
Burn, arm, "C" (Class XXV, Inter. 186)		1		1							6
Burn, arm, "F" (Class XXV, Inter. 186)		3		3							24
Burn, arm, "G" (Class XXV, Inter. 186)		1	1						1	1	29
Burn, arm, "H" (Class XXV, Inter. 186)		1		1							14
Burn, arm, "L" (Class XXV, Inter. 186)	1	37	1	36					3		262

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1920—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont. Days.
<b>DISEASES—Continued.</b>										
Rheumatism, chronic articular (Class XXI, Inter. 48B).....	33	244	267	207	69	.....	36	3.	196	4913,138
Rheumatism, muscular (Class XXI, Inter. 149).....	18	419	246	415	96	.....	9	2	144	17, 3,386
Rhinitis, acute (Class XVIII, Inter. 86).....	6	806	141	797	58	.....	.....	1	94	3, 3,358
Rhinitis, atrophic (Class XVIII, Inter. 86).....	5	17	9	8	4	.....	9	.....	7	3, 488
Rhinitis, hypertrophic (Class XVIII, Inter. 86).....	1	36	41	34	13	.....	.....	.....	29	2, 979
Rumination (Class III, Inter. 108).....	.....	1	4	1	2	.....	.....	.....	2	..... 78
Sarcoma (Class XXIII, Inter. 38-45).....	4	8	15	3	4	6	2	.....	10	2, 963
Scabies (Class XXII, Inter. 145B).....	80	1,417	647	1,429	95	.....	1	13	530	76,23,911
Scarlet fever (Class VIII, Inter. 7).....	79	323	278	272	144	11	.....	3	192	58 12, 383
Schistosomiasis, intestinal (Class XXII, Inter. 107).....	.....	.....	2	1	.....	.....	.....	.....	1	..... 7
Scleritis (Class VI, Inter. 75C).....	1	3	4	4	.....	.....	1	.....	3	..... 187
Sclerosis, disseminated (Class XVII, Inter. 63).....	.....	4	2	1	.....	.....	2	.....	2	1 122
Sclerosis, lateral (Class XVII, Inter. 63).....	.....	.....	4	.....	.....	.....	1	.....	3	..... 264
Seborrhea (Class XIX, Inter. 145C).....	.....	3	1	2	1	.....	.....	.....	1	..... 44
Senility (Class XXI, Inter. 154B).....	1	.....	.....	.....	.....	.....	.....	.....	1	..... 29
Septicemia (Class XIII, Inter. 20).....	4	24	13	5	26	.....	.....	.....	.....	2 1,823
Shock (Class XXI, Inter. 189A).....	.....	3	1	2	1	.....	.....	.....	1	..... 4
Sinus (Class XXI, Inter. 145C).....	2	19	26	17	7	.....	2	1	14	2 1,068
Sinusitis, ethmoidal (Class XVIII, Inter. 146).....	4	24	25	20	11	.....	3	.....	16	3 1,338
Sinusitis, frontal (Class XVIII, Inter. 146).....	11	225	170	208	51	.....	9	.....	136	12 5,382
Sinusitis, maxillary (Class XVIII, Inter. 146).....	6	80	37	69	17	.....	3	.....	29	5 3,043
Sinusitis, sphenoidal (Class XVIII, Inter. 146).....	.....	2	.....	2	.....	.....	.....	.....	.....	..... 21
Smallpox (Class VIII, Inter. 5).....	2	25	18	19	8	1	.....	.....	14	3 1,045
Somnambulism (Class XVII, Inter. 74).....	1	7	10	2	2	.....	5	.....	9	..... 180
Spasm habit (Class XVII, Inter. 74).....	.....	1	.....	1	.....	.....	.....	.....	.....	..... 2
Spermatocele (Class VII, Inter. 127).....	.....	1	2	.....	1	.....	.....	.....	1	1 37
Spermatorrhea (Class VII, Inter. 127).....	.....	1	1	1	.....	.....	.....	.....	1	..... 22
Splanchnoptosis (Class III, Inter. 110B).....	.....	6	14	4	4	.....	1	.....	9	2 494
Splenitis, acute (Class IV, Inter. 116).....	1	.....	.....	1	.....	.....	.....	.....	.....	..... 19
Splenitis, chronic interstitial (Class IV, Inter. 116).....	1	.....	.....	1	.....	.....	.....	.....	.....	..... 2
Sprue (Class III, Inter. 110B).....	.....	1	3	.....	.....	.....	.....	.....	3	1 84
Spur on nasal septum (Class XVIII, Inter. 86).....	.....	23	11	16	2	.....	2	.....	14	..... 368
Stammering (Class XVII, Inter. 74).....	2	7	6	2	2	.....	5	.....	4	2 365
Status lymphaticus (Class XIV, Inter. 84).....	.....	1	.....	.....	.....	1	.....	.....	.....	..... 0
Stenosis of gall-duct (Class III, Inter. 115).....	.....	1	1	.....	1	.....	.....	.....	1	..... 7
Stenosis of nasal duct (Class VI, Inter. 75C).....	.....	3	3	2	.....	.....	1	.....	3	..... 125
Stenosis of punctum lacrimale (Class VI, Inter. 75C).....	1	.....	.....	1	.....	.....	.....	.....	.....	..... 42
Stomatitis (Class III, Inter. 99B).....	1	37	21	33	6	.....	.....	.....	18	2 635
Stricture of intestine (Class III, Inter. 109).....	.....	1	2	1	.....	.....	.....	.....	1	1 28
Stricture of rectum (Class III, Inter. 110B).....	.....	1	1	1	.....	.....	.....	.....	1	..... 109
Stricture of ureter (Class VII, Inter. 122).....	.....	1	.....	.....	.....	.....	1	.....	.....	..... 73
Stricture of urethra (Class VII, Inter. 127).....	5	30	28	30	10	.....	2	.....	18	3 908
Strongyloides, intestinal (Class XXII, Inter. 107).....	4	4	3	1	.....	.....	.....	.....	3	1 83
Stuttering (Class XVII, Inter. 74).....	19	10	2	3	.....	.....	16	.....	.....	1 345
Sudamina (Class XIX, Inter. 145C).....	5	1	4	1	.....	.....	.....	.....	1	..... 57
Suppression of urine (Class VII, Inter. 124).....	.....	2	.....	2	.....	.....	.....	.....	.....	..... 16
Synechia (Class VI, Inter. 75C).....	.....	1	.....	1	.....	.....	.....	.....	.....	..... 13
Syphilis (Class XII, Inter. 37).....	289	2,470	2,519	2,855	695	9	79	33	1,376	23177,693

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1920—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>DISEASES—Continued.</b>											
Tachycardia (Class II, Inter. 85)...	7	71	60	46	22		17		46	4	2,168
Talipes (Class XVI, Inter. 149)...		6	8	1	1		5		6	1	263
Teniasis (Class XXII, Inter. 107)...	2	56	48	62	7				36	1	1,006
Tenosynovitis (Class XVI, Inter. 149)...	4	36	27	32	10		2		18	5	631
Teratoma (Class XXIII, Inter. 46)...		6	11	5	5				7		211
Thrombosis (Class II, Inter. 82)...		11	7	6	2	1			5	4	538
Thrush (Class XXII, Inter. 99B)...	2	3	2	2	2				1		33
Thyroiditis, acute (Class IV, Inter. 88)...		1						1			10
Thyroiditis, chronic (Class IV, Inter. 88)...		9	14	4	3		4		12		580
Tic, convulsive (Class XVII, Inter. 74)...	2	2			2		1		1		59
Tic, psychical (Class XVII, Inter. 74)...	2						2				39
Tonsillitis, acute follicular (Class XVIII, Inter. 100)...	307	11,961	3,469	11,523	864			11	2,940	389	87,151
Tonsillitis, chronic (Class XVIII, Inter. 100)...	31	842	467	782	132		1	1	395	29	15,668
Trachetitis (Class XVIII, Inter. 99)...		10	4	10	2				2		53
Trachoma (Class VI, Inter. 75B)...	4	14	19	5	5		9	1	12	5	872
Trichiniasis (Class XXII, Inter. 107)...		4	4	4	2				2		96
Trichophytosis (Class XXII, Inter. 145A)...	6	215	78	214	30			2	46	7	2,742
Trichuriasis (Class XXII, Inter. 107)...		1	2	1	1				1		10
Trichuris trichiura (Class XXII, Inter. 107)...	1	7	4	8	1				3		189
Tuberculosis, abdominal (Class XI, Inter. 31)...		7	16	1	6	1	2		10	3	688
Tuberculosis, acute bronchopneumonic (Class XI, Inter. 29)...	5	3	4		2	1	3		5	1	594
Tuberculosis, acute general (Class XI, Inter. 29)...		3	5	1		2	1		3	1	236
Tuberculosis, acute pneumonic (Class XI, Inter. 29)...	17	9	6	1	13	2	3		11	2	1,450
Tuberculosis, acute pulmonary miliary (Class XI, Inter. 29)...	12	12	22	1	14	4	4		19	4	1,651
Tuberculosis, chronic pulmonary (Class XI, Inter. 28)...	552	558	1,248	62	291	65	600	5	967	365	153,313
Tuberculosis of bronchus (Class XI, Inter. 28)...	1		1			1				1	408
Tuberculosis of joint (Class XI, Inter. 33)...	11	13	21	3	10		8		15	9	3,330
Tuberculosis of larynx (Class XI, Inter. 28)...	3	1	1		1		2		2		154
Tuberculosis of pleura (Class XI, Inter. 28)...	6	1	3		2		3		4	1	839
Tuberculosis of spinal column (Class XI, Inter. 32)...	4	5	11	1	3	2	4		7	3	1,533
Tuberculosis, unqualified (Class XI, Inter. 34)...	16	25	36	8	19	3	13		23	11	4,134
Tuberculous meningitis (Class XI, Inter. 30)...		3	5		3	3			2		20
Typhoid fever (Class IX, Inter. 1)...	14	28	41	24	21	6			27	5	2,093
Ulcer of bladder (Class VII, Inter. 124)...		1	1	1	1						22
Ulcer of duodenum (Class III, Inter. 105A)...	11	26	48	24	18	2	2		32	9	2,963
Ulcer of eye and adnexa (Class VI, Inter. 75C)...	2	53	28	38	11		3		27	4	873
Ulcer of mouth (Class III, Inter. 99B)...		6	8	5	5				3	1	240
Ulcer of nasal passage (Class XVIII, Inter. 86)...	1	5	1	6					1		57
Ulcer of skin (Class XIX, Inter. 145C)...	26	147	90	154	20		1	2	68	18	5,750
Ulcer of stomach (Class III, Inter. 102)...	10	35	61	28	20	1	6		38	13	2,841
Ulceromembranous angina (Class III, Inter. 100)...	26	474	307	453	129				190	35	7,333
Uncinariasis (Class XXII, Inter. 106)...	5	733	1,279	1,151	32		1	2	829	2	4,086
Union of fracture faulty (Class XVI, Inter. 146)...	14	134	91	34	18	1	95	1	70	20	5,990
Urteral colic (Class VII, Inter. 123)...		4		4							50
Urethritis, acute (nonvenereal) (Class VII, Inter. 125)...		22	15	23	6				9		350



TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1920—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Abrasion, head, "H" (Class XXV, Inter. 186)		1	1	1					1		4
Abrasion, hip, "G" (Class XXV, Inter. 186)		2	2	2	1				1		17
Abrasion, knee, "G" (Class XXV, Inter. 186)		15	1	14					2		66
Abrasion, knee, "J" (Class XXV, Inter. 186)		1		1							4
Abrasion, knee, "L" (Class XXV, Inter. 186)		1	1	2							45
Abrasion, leg, "G" (Class XXV, Inter. 186)		14	2	12					3	1	75
Abrasion, leg, "H" (Class XXV, Inter. 186)		1		1							9
Abrasion, leg, "L" (Class XXV, Inter. 186)		3	2	5							62
Abrasion, mouth, "I" (Class XXV, Inter. 186)		1		1							1
Abrasion, mouth, "L" (Class XXV, Inter. 186)		1		1							1
Abrasion, multiple, "G" (Class XXV, Inter. 186)		4	1	4					1		28
Abrasion, multiple, "H" (Class XXV, Inter. 186)		4	2	4					2		55
Abrasion, multiple, "L" (Class XXV, Inter. 186)		3	2	3	1				1		20
Abrasion, nose, "G" (Class XXV, Inter. 186)		1	2	1	1				1		20
Abrasion, penis, "L" (Class XXV, Inter. 186)		4	4	4	2				2		31
Abrasion, thigh, "G" (Class XXV, Inter. 186)		1		1							4
Abrasion, thigh, "H" (Class XXV, Inter. 186)		1		1							12
Abrasion, thigh, "L" (Class XXV, Inter. 186)		1		1							4
Abrasion, thorax, "G" (Class XXV, Inter. 186)		1		1							2
Abrasion, toe, "I" (Class XXV, Inter. 186)		2		2							8
Abrasion, toe, "J" (Class XXV, Inter. 186)		1		1							10
Abrasion, toe, "L" (Class XXV, Inter. 186)	1	5	1	6	1						44
Abrasion, unqualified, "L" (Class XXV, Inter. 186)		12		12							43
Avulsion, finger, "E" (Class XXV, Inter. 186)		1		1							13
Avulsion, finger, "H" (Class XXV, Inter. 186)	2	23	4	23					4	2	614
Avulsion, finger, "I" (Class XXV, Inter. 186)		12	1	13							146
Avulsion, finger, "L" (Class XXV, Inter. 186)		3		2					1		18
Avulsion, foot, "L" (Class XXV, Inter. 186)			1				1				7
Avulsion, hand, "H" (Class XXV, Inter. 186)	1			1							14
Avulsion, teeth, "H" (Class XXV, Inter. 186)		1	1	1					1		36
Avulsion, toe, "I" (Class XXV, Inter. 186)		1	1	1					1		103
Blood donor, "L" (Class XXV, Inter. 186)		2		2							8
Burn, abdomen, "L" (Class XXV, Inter. 186)	1	8	1	8					2		47
Burn, ankle, "F" (Class XXV, Inter. 186)			2	1				1			38
Burn, ankle, "L" (Class XXV, Inter. 186)		11	1	10					2		144
Burn, arm, "C" (Class XXV, Inter. 186)		1		1							6
Burn, arm, "F" (Class XXV, Inter. 186)		3		3							24
Burn, arm, "G" (Class XXV, Inter. 186)		1	1						1	1	20
Burn, arm, "H" (Class XXV, Inter. 186)		1		1							14
Burn, arm, "L" (Class XXV, Inter. 186)	1	37	1	36					3		262

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1920—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Burn, back, "F" (Class XXV, Inter. 186)		1							1		6
Burn, back, "L" (Class XXV, Inter. 186)	1	10	7	10	1			1	5	1	249
Burn, ear, "L" (Class XXV, Inter. 186)		1	1						1	1	2
Burn, elbow, "C" (Class XXV, Inter. 186)		1	2	2					1		30
Burn, elbow, "G" (Class XXV, Inter. 186)	1			1							2
Burn, elbow, "L" (Class XXV, Inter. 186)		3		3							19
Burn, eye and adnexa, "C" (Class XXV, Inter. 186)		3	1	3					1		13
Burn, eye and adnexa, "E" (Class XXV, Inter. 186)		1	1	1					1		2
Burn, eye and adnexa, "F" (Class XXV, Inter. 186)		5	5	5					4	1	87
Burn, eye and adnexa, "L" (Class XXV, Inter. 186)	1	33	18	33	2				15	2	391
Burn, face, "C" (Class XXV, Inter. 186)		4		2					2		6
Burn, face, "E" (Class XXV, Inter. 186)		1		1							5
Burn, face, "F" (Class XXV, Inter. 186)	2	9	2	11					1	1	122
Burn, face, "G" (Class XXV, Inter. 186)		2		2							5
Burn, face, "L" (Class XXV, Inter. 186)		28	6	27					6	1	159
Burn, finger, "C" (Class XXV, Inter. 186)		1		1							10
Burn, finger, "F" (Class XXV, Inter. 186)		1		1							20
Burn, finger, "L" (Class XXV, Inter. 186)		9		9							55
Burn, foot, "C" (Class XXV, Inter. 186)		6		6							181
Burn, foot, "F" (Class XXV, Inter. 186)	1	4		4	1						85
Burn, foot, "G" (Class XXV, Inter. 186)		1		1							4
Burn, foot, "L" (Class XXV, Inter. 186)	4	74	8	75	2				8	1	1,038
Burn, forearm, "C" (Class XXV, Inter. 186)		1		1							13
Burn, forearm, "F" (Class XXV, Inter. 186)	1	1		2							16
Burn, forearm, "L" (Class XXV, Inter. 186)		20	4	21					3		158
Burn, hand, "C" (Class XXV, Inter. 186)		8		8							42
Burn, hand, "E" (Class XXV, Inter. 186)		1		1							3
Burn, hand, "F" (Class XXV, Inter. 186)		11	2	9					3	1	83
Burn, hand, "L" (Class XXV, Inter. 186)	2	73	14	75	1		1		11	1	1,060
Burn, hand, "L-R" (Class XXV, Inter. 186)		1		1							2
Burn, head, "F" (Class XXV, Inter. 186)	1			1							3
Burn, head, "L" (Class XXV, Inter. 186)		3		2					1		27
Burn, hip, "L" (Class XXV, Inter. 186)		1		1							12
Burn, knee, "L" (Class XXV, Inter. 186)		2		2							11
Burn, leg, "C" (Class XXV, Inter. 186)		1	1		1				1		11
Burn, leg, "F" (Class XXV, Inter. 186)		2	1	3							25
Burn, leg, "L" (Class XXV, Inter. 186)	2	43	6	37	2				7	5	849
Burn, lower extremity, "F" (Class XXV, Inter. 186)		1	2	2					1		85
Burn, lower extremity, "L" (Class XXV, Inter. 186)		6	6	6	2				2	1	200
Burn, mouth, "L" (Class XXV, Inter. 186)		1		1							3



TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1920—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Burn, multiple, "C" (Class XXV, Inter. 186).	2	45	27	38	3		1		29	3	1,145
Burn, multiple, "C-R" (Class XXV, Inter. 186).		3				3					0
Burn, multiple, "F" (Class XXV, Inter. 186).	9	51	27	43	4	10	4		22	4	2,131
Burn, multiple, "G" (Class XXV, Inter. 186).		1	1	1					1		64
Burn, multiple, "G-R" (Class XXV, Inter. 186).		2				2					4
Burn, multiple, "L" (Class XXV, Inter. 186).	9	114	56	107	2	4	1		52	13	2,061
Burn, neck, "L" (Class XXV, Inter. 186).	1	4		5							72
Burn, pelvic region, "F" (Class XXV, Inter. 186).		1		1							3
Burn, penis, "L" (Class XXV, Inter. 186).	1	9	7	8	2			1	5	1	134
Burn, scrotum, "L" (Class XXV, Inter. 186).	2	1		3							44
Burn, shoulder, "C" (Class XXV, Inter. 186).		1		1							9
Burn, shoulder, "F" (Class XXV, Inter. 186).		1	1	1					1		18
Burn, shoulder, "L" (Class XXV, Inter. 186).		6		5						1	72
Burn, testicle, "L" (Class XXV, Inter. 186).		1		1							8
Burn, thigh, "F" (Class XXV, Inter. 186).		2	1	2					1		7
Burn, thigh, "L" (Class XXV, Inter. 186).		13	2	13					2		202
Burn, thorax, "C" (Class XXV, Inter. 186).		1							1		0
Burn, thorax, "F" (Class XXV, Inter. 186).		1		1							8
Burn, thorax, "G" (Class XXV, Inter. 186).		1		1							12
Burn, thorax, "L" (Class XXV, Inter. 186).		7	1	5					2	1	93
Burn, toe, "L" (Class XXV, Inter. 186).		4		3	1						19
Burn, tongue, "L" (Class XXV, Inter. 186).		1			1						2
Burn, upper extremity, "C" (Class XXV, Inter. 186).		2		1					1		14
Burn, upper extremity, "F" (Class XXV, Inter. 186).		1	1	2							99
Burn, upper extremity, "L" (Class XXV, Inter. 186).		6	4	5	1	1			3		80
Burn, urethra, "L" (Class XXV, Inter. 186).		1	2	1	1				1		4
Burn, wrist, "C" (Class XXV, Inter. 186).		1		1							3
Burn, wrist, "L" (Class XXV, Inter. 186).	1	3	1	3					2		38
Compression, brain, "J" (Class XXV, Inter. 186).		1	3	2	1				1		60
Compression, brain, "L" (Class XXV, Inter. 186).		2	1				1		2		133
Compression, head, "G" (Class XXV, Inter. 186).		1		1							2
Compression, thorax, "I" (Class XXV, Inter. 186).		3	2	3	1				1		30
Compression, toe, "L" (Class XXV, Inter. 186).		1	1	1					1		49
Contusion, abdomen, "G" (Class XXV, Inter. 186).		35	21	31	8				16	1	274
Contusion, abdomen, "H" (Class XXV, Inter. 186).		1	1	1					1		11
Contusion, abdomen, "I" (Class XXV, Inter. 186).		4	3	5	1				1		42
Contusion, abdomen, "J" (Class XXV, Inter. 186).		12	9	14	3				4		76
Contusion, abdomen, "L" (Class XXV, Inter. 186).		12	6	12	1			1	4		92
Contusion, ankle, "G" (Class XXV, Inter. 186).	1	12	2	11	2				2		91
Contusion, ankle, "H" (Class XXV, Inter. 186).	1	1		2							38
Contusion, ankle, "I" (Class XXV, Inter. 186).		13	3	12	1				3		123

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1920—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	yr.
<b>INJURIES—Continued.</b>											
Contusion, ankle, "J" (Class XXV, Inter. 186)		8			8						40
Contusion, ankle, "L" (Class XXV, Inter. 186)	1	16	4	15	1				5		121
Contusion, arm, "G" (Class XXV, Inter. 186)	7	2	6	1					2		66
Contusion, arm, "G-R" (Class XXV, Inter. 186)	1	1	1						1		8
Contusion, arm, "H" (Class XXV, Inter. 186)	1	3	4	5	2				1		42
Contusion, arm, "I" (Class XXV, Inter. 186)	1		1								12
Contusion, arm, "I-S" (Class XXV, Inter. 186)	1		1								6
Contusion, arm, "J" (Class XXV, Inter. 186)	8	4	7	1					4		33
Contusion, arm, "L" (Class XXV, Inter. 186)	1	11	2	12	1				1		113
Contusion, back, "G" (Class XXV, Inter. 186)	2	66	45	62	20			1	26	2	349
Contusion, back, "G-R" (Class XXV, Inter. 186)	2	2	2						2		23
Contusion, back, "H" (Class XXV, Inter. 186)	2	1	2						1		22
Contusion, back, "I" (Class XXV, Inter. 186)	7		6						1		32
Contusion, back, "J" (Class XXV, Inter. 186)	1	11	5	11	2				4		125
Contusion, back, "L" (Class XXV, Inter. 186)	1	15	14	19	7				4		207
Contusion, brain, "G" (Class XXV, Inter. 186)	1			1							55
Contusion, brain, "L" (Class XXV, Inter. 186)	3	4	3	2					2		25
Contusion, ear, "G" (Class XXV, Inter. 186)	1		1								6
Contusion, ear, "J" (Class XXV, Inter. 186)	1	1	1						1		13
Contusion, ear, "L" (Class XXV, Inter. 186)	3		3								20
Contusion, elbow, "G" (Class XXV, Inter. 186)	1		1								3
Contusion, elbow, "I" (Class XXV, Inter. 186)	1	17	7	18	2			1	4		165
Contusion, elbow, "J" (Class XXV, Inter. 186)	1				1						6
Contusion, elbow, "L" (Class XXV, Inter. 186)	6	4	6	1					3		60
Contusion, eye and adnexa, "G" (Class XXV, Inter. 186)	6	3	6	1					2		43
Contusion, eye and adnexa, "H" (Class XXV, Inter. 186)	1	2	5	1					1	1	45
Contusion, eye and adnexa, "I" (Class XXV, Inter. 186)	2		1	1					1		16
Contusion, eye and adnexa, "J" (Class XXV, Inter. 186)	18	5	17	2					4		72
Contusion, eye and adnexa, "L" (Class XXV, Inter. 186)	34	11	31					1	11	2	330
Contusion, face, "G" (Class XXV, Inter. 186)	7	2	7						2		115
Contusion, face, "H" (Class XXV, Inter. 186)	2		2								15
Contusion, face, "J" (Class XXV, Inter. 186)	9	7	9	2					5		56
Contusion, face, "L" (Class XXV, Inter. 186)	23	15	20	5					11	2	140
Contusion, finger, "H" (Class XXV, Inter. 186)	1	14	6	14					4	3	300
Contusion, finger, "I" (Class XXV, Inter. 186)	24	3	22	1					4		154
Contusion, finger, "J" (Class XXV, Inter. 186)	4		4								15
Contusion, finger, "L" (Class XXV, Inter. 186)	24	6	26	2					2		230
Contusion, foot, "G" (Class XXV, Inter. 186)	24	4	24	1					3		194
Contusion, foot, "H" (Class XXV, Inter. 186)	9	1	8						2		61

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1920—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Contusion, foot, "H-R" (Class XXV, Inter. 186)		1		1							22
Contusion, foot, "I" (Class XXV, Inter. 186)	1	63	16	64	7				8	1	669
Contusion, foot, "J" (Class XXV, Inter. 186)		13	8	12	3				6		67
Contusion, foot, "L" (Class XXV, Inter. 186)	3	73	19	73	9				12	1	842
Contusion, forearm, "G" (Class XXV, Inter. 186)		5	4	5	2				2		37
Contusion, forearm, "H" (Class XXV, Inter. 186)		4	1	5							42
Contusion, forearm, "I" (Class XXV, Inter. 186)		2	2	3	1				1		45
Contusion, forearm, "J" (Class XXV, Inter. 186)		1		1							6
Contusion, forearm, "L" (Class XXV, Inter. 186)		8	4	9	1				2		83
Contusion, hand, "F" (Class XXV, Inter. 186)		1		1							2
Contusion, hand, "G" (Class XXV, Inter. 186)		7	2	8	1						161
Contusion, hand, "H" (Class XXV, Inter. 186)		14		14							86
Contusion, hand, "I" (Class XXV, Inter. 186)		15	2	13	1				2	1	86
Contusion, hand, "J" (Class XXV, Inter. 186)		7	1	7					1		23
Contusion, hand, "L" (Class XXV, Inter. 186)		10	1	11							101
Contusion, head, "B" (Class XXV, Inter. 186)		2		2							9
Contusion, head, "G" (Class XXV, Inter. 186)	1	38	23	36	10				16		257
Contusion, head, "H" (Class XXV, Inter. 186)		7	4	7	1				3		42
Contusion, head, "I" (Class XXV, Inter. 186)		6	2	6	1				1		17
Contusion, head, "J" (Class XXV, Inter. 186)		9	8	8	4				5		62
Contusion, head, "L" (Class XXV, Inter. 186)	1	42	31	40	14				19	1	363
Contusion, hip, "G" (Class XXV, Inter. 186)		18	9	19	2				6		213
Contusion, hip, "H" (Class XXV, Inter. 186)		2	1	1					1	1	11
Contusion, hip, "I" (Class XXV, Inter. 186)		1		1							7
Contusion, hip, "J" (Class XXV, Inter. 186)	1	4	2	3	2				1	1	152
Contusion, hip, "L" (Class XXV, Inter. 186)		5	3	5	1				2		27
Contusion, kidney, "J" (Class XXV, Inter. 186)		1	2	2	1				1		51
Contusion, knee, "G" (Class XXV, Inter. 186)	4	80	33	86	7				24		1,203
Contusion, knee, "G-R" (Class XXV, Inter. 186)		1		1							16
Contusion, knee, "H" (Class XXV, Inter. 186)	1	5	7	7	3				3		85
Contusion, knee, "H-R" (Class XXV, Inter. 186)		1		1							12
Contusion, knee, "I" (Class XXV, Inter. 186)		5		4					1		24
Contusion, knee, "J" (Class XXV, Inter. 186)		40	16	40					14	2	424
Contusion, knee, "L" (Class XXV, Inter. 186)	1	25	10	27	2				7		325
Contusion, leg, "G" (Class XXV, Inter. 186)	1	40	18	40	5				11	3	541
Contusion, leg, "H" (Class XXV, Inter. 186)		6	2	4					3	1	134
Contusion, leg, "I" (Class XXV, Inter. 186)		13	2	11	1			1	2		123
Contusion, leg, "J" (Class XXV, Inter. 186)		23	10	23	3				6	1	117
Contusion, leg, "L" (Class XXV, Inter. 186)	1	38	15	38	5				11		327
Contusion, lower extremity, "G" (Class XXV, Inter. 186)	1			1							19

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1920—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Contusion, maxilla, "G-R" (Class XXV, Inter. 186)		1		1							1
Contusion, maxilla, "J" (Class XXV, Inter. 186)		4	6	3	3				4		16
Contusion, maxilla, "L" (Class XXV, Inter. 186)		9	3	9	1				2		44
Contusion, mouth, "G" (Class XXV, Inter. 186)		2		2							6
Contusion, mouth, "J" (Class XXV, Inter. 186)		1		1							3
Contusion, mouth, "L" (Class XXV, Inter. 186)		3	3	4	1				1		47
Contusion, multiple, "G" (Class XXV, Inter. 186)	3	42	27	45	9				18		331
Contusion, multiple, "G-R" (Class XXV, Inter. 186)		4	3	3	1				3		73
Contusion, multiple, "H" (Class XXV, Inter. 186)		5	1	5					1		32
Contusion, multiple, "H-R" (Class XXV, Inter. 186)		4	1	2					3		27
Contusion, multiple, "I" (Class XXV, Inter. 186)		10	2	9					3		87
Contusion, multiple, "J" (Class XXV, Inter. 186)		10	5	9	2				4		66
Contusion, multiple, "L" (Class XXV, Inter. 186)	1	34	32	31	14			1	20	1	591
Contusion, neck, "A" (Class XXV, Inter. 186)		1		1							3
Contusion, neck, "G" (Class XXV, Inter. 186)		4		3	1						15
Contusion, neck, "H" (Class XXV, Inter. 186)		1	1	1					1		3
Contusion, neck, "I" (Class XXV, Inter. 186)		2		1						1	4
Contusion, neck, "J" (Class XXV, Inter. 186)		7	3	7	1				2		51
Contusion, neck, "L" (Class XXV, Inter. 186)		3	3	3	1				2		15
Contusion, nose, "G" (Class XXV, Inter. 186)		1		1							3
Contusion, nose, "J" (Class XXV, Inter. 186)		8	2	8					2		44
Contusion, nose, "L" (Class XXV, Inter. 186)		6	1	6					1		37
Contusion, pelvic region, "G" (Class XXV, Inter. 186)		2	2	2					2		33
Contusion, pelvic region, "J" (Class XXV, Inter. 186)		1		1							3
Contusion, pelvic region, "L" (Class XXV, Inter. 186)		2	1	2					1		6
Contusion, penis, "G" (Class XXV, Inter. 186)		1		1							2
Contusion, penis, "L" (Class XXV, Inter. 186)		1		1							23
Contusion, scrotum, "I" (Class XXV, Inter. 186)		1		1							13
Contusion, scrotum, "J" (Class XXV, Inter. 186)		1	1						1	1	1
Contusion, scrotum, "L" (Class XXV, Inter. 186)		3	2	3					2		31
Contusion, shoulder, "E" (Class XXV, Inter. 186)		1		1							1
Contusion, shoulder, "G" (Class XXV, Inter. 186)		24	11	22	3				9	1	201
Contusion, shoulder, "I" (Class XXV, Inter. 186)		2		2							10
Contusion, shoulder, "J" (Class XXV, Inter. 186)		17	13	16	5				9		136
Contusion, shoulder, "L" (Class XXV, Inter. 186)		8	5	9	1				3		141
Contusion, testicle, "G" (Class XXV, Inter. 186)		11	2	10	1				2		89
Contusion, testicle, "I" (Class XXV, Inter. 186)		1		1							25
Contusion, testicle, "J" (Class XXV, Inter. 186)		9	6	10	2				3		99
Contusion, testicle, "L" (Class XXV, Inter. 186)		9	5	9	2				3		224
Contusion, thigh, "G" (Class XXV, Inter. 186)		14	2	12	1				3		127

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1920—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Contusion, thigh, "H" (Class XXV, Inter. 186)		1	2	1					1	1	7
Contusion, thigh, "H-R" (Class XXV, Inter. 186)			1	1							24
Contusion, thigh, "I" (Class XXV, Inter. 186)		3	3	4	1				1		25
Contusion, thigh, "J" (Class XXV, Inter. 186)		9	3	9	1				2		72
Contusion, thigh, "L" (Class XXV, Inter. 186)	1	9	5	12	2				1		152
Contusion, thorax, "G" (Class XXV, Inter. 186)		27	20	26	9				11	1	220
Contusion, thorax, "G-R" (Class XXV, Inter. 186)		1		1							6
Contusion, thorax, "H" (Class XXV, Inter. 186)		1	1	1					1		6
Contusion, thorax, "I" (Class XXV, Inter. 186)		1	4	2	2				1		15
Contusion, thorax, "J" (Class XXV, Inter. 186)		12	10	11	6				5		101
Contusion, thorax, "L" (Class XXV, Inter. 186)	1	14	5	14	1				5		162
Contusion, toe, "G" (Class XXV, Inter. 186)		5		5							44
Contusion, toe, "H" (Class XXV, Inter. 186)		4		4							43
Contusion, toe, "H-R" (Class XXV, Inter. 186)		1		1							21
Contusion, toe, "I" (Class XXV, Inter. 186)		47	3	45					3	2	390
Contusion, toe, "J" (Class XXV, Inter. 186)		1	1	1					1		10
Contusion, toe, "L" (Class XXV, Inter. 186)		18	2	19					1		119
Contusion, wrist, "G" (Class XXV, Inter. 186)		6	4	6	2				1	1	39
Contusion, wrist, "H" (Class XXV, Inter. 186)		6		6							29
Contusion, wrist, "I" (Class XXV, Inter. 186)		4	4	4	2				2		46
Contusion, wrist, "J" (Class XXV, Inter. 186)		2	1	2					1		13
Contusion, wrist, "L" (Class XXV, Inter. 186)		3	1	4							22
Crush, abdomen, "I" (Class XXV, Inter. 186)		1	2	1	1				1		6
Crush, ankle, "H" (Class XXV, Inter. 186)		2	4	2					4		197
Crush, arm, "H" (Class XXV, Inter. 186)		1		1							26
Crush, finger, "H" (Class XXV, Inter. 186)	3	34	15	33	1				15	3	720
Crush, finger, "I" (Class XXV, Inter. 186)	1	45	10	41	2		2		9	2	811
Crush, finger, "L" (Class XXV, Inter. 186)	1	6	1	8							42
Crush, foot, "E" (Class XXV, Inter. 186)		1	2						2	1	287
Crush, foot, "G" (Class XXV, Inter. 186)	1								1		12
Crush, foot, "H" (Class XXV, Inter. 186)		4	5	5	1				3		131
Crush, foot, "I" (Class XXV, Inter. 186)	2	15	10	13	5				7	2	426
Crush, foot, "L" (Class XXV, Inter. 186)		3	3	2	1		1		1	1	179
Crush, forearm, "H" (Class XXV, Inter. 186)	1									1	366
Crush, forearm, "I" (Class XXV, Inter. 186)		1		1							5
Crush, hand, "H" (Class XXV, Inter. 186)	2	4	5	3	2		1		5		345
Crush, hand, "H-R" (Class XXV, Inter. 186)		1	1	1					1		36
Crush, hand, "I" (Class XXV, Inter. 186)	1	8	6	8					5	2	370
Crush, head, "G" (Class XXV, Inter. 186)		1				1					0
Crush, knee, "G" (Class XXV, Inter. 186)		1		1							6

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1920—Contd.

Diagnoses.	Rem.	A.	R.A.	D.	C.	DD.	IS.	R.	T.	Cont. Days.
<b>INJURIES—Continued.</b>										
Crush, leg, "H" (Class XXV, Inter. 186)	1						1			86
Crush, leg, "I" (Class XXV, Inter. 186)		1							1	30
Crush, multiple, "H-R" (Class XXV, Inter. 186)		1				1				6
Crush, multiple, "I" (Class XXV, Inter. 186)		1	2	1	1				1	125
Crush, shoulder, "H" (Class XXV, Inter. 186)		1	2		1		1		1	1
Crush, testicle, "G" (Class XXV, Inter. 186)	1			1						9
Crush, testicle, "I" (Class XXV, Inter. 186)		2	1	2					1	13
Crush, thorax, "H" (Class XXV, Inter. 186)		1	1						1	2
Crush, thorax, "I" (Class XXV, Inter. 186)		2		1		1				22
Crush, toe, "H" (Class XXV, Inter. 186)		4		2						64
Crush, toe, "I" (Class XXV, Inter. 186)	4	19	9	23	2	1	2		2	619
Crush, toe, "L" (Class XXV, Inter. 186)	1			1						35
Crush, wrist, "I" (Class XXV, Inter. 186)		1	1	1					1	29
Decapitation, "H-R" (Class XXV, Inter. 186)		1				1				0
Dislocation, ankle, "G" (Class XXV, Inter. 186)		6	4	5	1		1		2	334
Dislocation, ankle, "G-R" (Class XXV, Inter. 186)		1	3		1				2	281
Dislocation, ankle, "I" (Class XXV, Inter. 186)		1	1	1					1	115
Dislocation, ankle, "J" (Class XXV, Inter. 186)		1	1	1					1	11
Dislocation, ankle, "L" (Class XXV, Inter. 186)	1	3	1	3					2	305
Dislocation, clavicle, "G" (Class XXV, Inter. 186)		1	1						1	14
Dislocation, clavicle, "J" (Class XXV, Inter. 186)		1	2	1	1				1	34
Dislocation, elbow, "G" (Class XXV, Inter. 186)	1	10	8	8	2			6	2	402
Dislocation, elbow, "H" (Class XXV, Inter. 186)		1		1						16
Dislocation, elbow, "J" (Class XXV, Inter. 186)		10	7	10	3				4	233
Dislocation, hip, "G" (Class XXV, Inter. 186)		3	2	1			1		2	189
Dislocation, hip, "J" (Class XXV, Inter. 186)		1		1						14
Dislocation, hip, "L" (Class XXV, Inter. 186)		1	1	2						43
Dislocation, intra-articular cartilage, "G" (Class XXV, Inter. 186)	1	4	4	3	1		1		4	253
Dislocation, intra-articular cartilage, "J" (Class XXV, Inter. 186)		4	5	4	1				4	165
Dislocation, intra-articular cartilage, "K" (Class XXV, Inter. 186)			1	1						1
Dislocation, intra-articular cartilage, "L" (Class XXV, Inter. 186)		2		2						57
Dislocation, knee, "G" (Class XXV, Inter. 186)		3	1	2			1		1	74
Dislocation, knee, "H" (Class XXV, Inter. 186)		1	2	1	1				1	65
Dislocation, knee, "I" (Class XXV, Inter. 186)		1					1			20
Dislocation, knee, "J" (Class XXV, Inter. 186)	1		1	1					1	38
Dislocation, knee, "K" (Class XXV, Inter. 186)			1				1			70
Dislocation, knee, "L" (Class XXV, Inter. 186)		3	5	2	1		1		4	300
Dislocation, lens, "L" (Class XXV, Inter. 186)	1			1						9

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1920—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Dislocation, maxilla, "L" (Class XXV, Inter. 186).....		1	1	1					1		24
Dislocation, metacarpal, "L" (Class XXV, Inter. 186).....	1	1		1	1						16
Dislocation, metatarsal, "G" (Class XXV, Inter. 186).....		2		2							4
Dislocation, nasal, "G" (Class XXV, Inter. 186).....	1			1							6
Dislocation, nasal, "J" (Class XXV, Inter. 186).....			2	1	1						39
Dislocation, nasal, "L" (Class XXV, Inter. 186).....			2	1	1						10
Dislocation, patella, "G" (Class XXV, Inter. 186).....		3		2					1		40
Dislocation, patella, "J" (Class XXV, Inter. 186).....	1	1		1							7
Dislocation, patella, "L" (Class XXV, Inter. 186).....	1		1	1	1						118
Dislocation, phalanges, foot, "G" (Class XXV, Inter. 186).....	1			1							2
Dislocation, phalanges, foot, "I" (Class XXV, Inter. 186).....	2	2	2	2					2		57
Dislocation, phalanges, foot, "L" (Class XXV, Inter. 186).....	1	3	2	2					2		50
Dislocation, phalanges, hand, "G" (Class XXV, Inter. 186).....	2		2	2							19
Dislocation, phalanges, hand, "I" (Class XXV, Inter. 186).....	3	1	3	1							20
Dislocation, phalanges, hand, "J" (Class XXV, Inter. 186).....	4	1	4						1		47
Dislocation, phalanges, hand, "L" (Class XXV, Inter. 186).....	1	3	1	3					1	1	95
Dislocation, rib, "J" (Class XXV, Inter. 186).....	1			1							14
Dislocation, rib, "L" (Class XXV, Inter. 186).....	1							1			50
Dislocation, shoulder, "G" (Class XXV, Inter. 186).....	3	31	31	29	9		3		23	2	905
Dislocation, shoulder, "H" (Class XXV, Inter. 186).....	1	2	2		2				2	1	174
Dislocation, shoulder, "I" (Class XXV, Inter. 186).....			2	2							24
Dislocation, shoulder, "J" (Class XXV, Inter. 186).....	3	29	28	31	7		1		18	3	918
Dislocation, shoulder, "L" (Class XXV, Inter. 186).....	12	7	15	1			1		2		301
Dislocation, vertebra, "G" (Class XXV, Inter. 186).....	1	1							1	1	44
Dislocation, vertebra, "J" (Class XXV, Inter. 186).....	2	5			2		2		3		210
Dislocation, wrist, "G" (Class XXV, Inter. 186).....	7	3	6						4		108
Dislocation, wrist, "H" (Class XXV, Inter. 186).....	2		1						1		15
Dislocation, wrist, "J" (Class XXV, Inter. 186).....	2		1							1	64
Dislocation, wrist, "L" (Class XXV, Inter. 186).....	2	2	2	2					1	1	57
Drowning, "A" (Class XXV, Inter. 186).....	4						4				0
Drowning, "D" (Class XXV, Inter. 186).....	107						107				0
Drowning, "D-R" (Class XXV, Inter. 186).....	10						10				0
Drowning, "D-S" (Class XXV, Inter. 186).....	2						2				0
Drowning, "G-R" (Class XXV, Inter. 186).....	1						1				0
Electric shock, injury from, "L" (Class XXV, Inter. 186).....	9	2	7				2		2		21
Epiphyseal separation, femur, "L" (Class XXV, Inter. 186).....	1	1	1						1		31
Epiphyseal separation, radius, "G" (Class XXV, Inter. 186).....	2	2	2	2	2				2		197
Epiphyseal separation, radius, "L" (Class XXV, Inter. 186).....	1		1								28
Epiphyseal separation, radius and ulna, "G" (Class XXV, Inter. 186).....	3	2	2						2	1	76
Epiphyseal separation, tibia, "G" (Class XXV, Inter. 186).....	1	3	1						2	1	80

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1920—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Epiphyseal separation, tibia and fibula, "G" (Class XXV, Inter. 186).....		1	2	1	1				1		5
Epiphyseal separation, ulna, "G" (Class XXV, Inter. 186).....		1		1							1
Exhaustion from heat, "J" (Class XXV, Inter. 186).....		1	2	1	1				1		4
Exhaustion from heat, "L" (Class XXV, Inter. 186).....		108	16	105	7				11	1	408
Exhaustion from overexertion, "J" (Class XXV, Inter. 186).....		1		1							1
Exhaustion from overexertion, "L" (Class XXV, Inter. 186).....		9	2	9	1				1		21
Exhaustion from overexposure, "L" (Class XXV, Inter. 186).....		2		2							10
Foreign body, traumatic, arm, "K" (Class XXV, Inter. 186).....			2	1					1		40
Foreign body, traumatic, back, "B" (Class XXV, Inter. 186).....		1	1	1					1		31
Foreign body, traumatic, chest, "K" (Class XXV, Inter. 186).....			5	1			1		2		38
Foreign body, traumatic, elbow, "G" (Class XXV, Inter. 186).....		1		1							9
Foreign body, traumatic, elbow, "L" (Class XXV, Inter. 186).....		1	1	1					1		11
Foreign body, traumatic, esophagus, "L" (Class XXV, Inter. 186).....		2		2							9
Foreign body, traumatic, eye, "E" (Class XXV, Inter. 186).....		1	1	1					1		40
Foreign body, traumatic, eye, "F" (Class XXV, Inter. 186).....		3	2	2					2	1	20
Foreign body, traumatic, eye, "H" (Class XXV, Inter. 186).....		12	4	10					6		36
Foreign body, traumatic, eye, "J" (Class XXV, Inter. 186).....			2		1				1		32
Foreign body, traumatic, eye, "L" (Class XXV, Inter. 186).....		38	23	42	3		1		15		535
Foreign body, traumatic, eye, "L-R" (Class XXV, Inter. 186).....		2	1	2					1		18
Foreign body, traumatic, face, "E" (Class XXV, Inter. 186).....		1	1	1					1		3
Foreign body, traumatic, finger, "I" (Class XXV, Inter. 186).....		1	2	1	1				1		20
Foreign body, traumatic, finger, "L" (Class XXV, Inter. 186).....	1		1	1					1		24
Foreign body, traumatic, foot, "K" (Class XXV, Inter. 186).....			5	2					3		78
Foreign body, traumatic, foot, "L" (Class XXV, Inter. 186).....		4	2	4					2		97
Foreign body, traumatic, forearm, "F" (Class XXV, Inter. 186).....		1		1							3
Foreign body, traumatic, forearm, "L" (Class XXV, Inter. 186).....		1		1							1
Foreign body, traumatic, hand, "L" (Class XXV, Inter. 186).....		1	1						1	1	3
Foreign body, traumatic, knee, "E" (Class XXV, Inter. 186).....	1			1							56
Foreign body, traumatic, knee, "F" (Class XXV, Inter. 186).....	1		1		1				1		159
Foreign body, traumatic, knee, "G" (Class XXV, Inter. 186).....	1	2		1	1			1			77
Foreign body, traumatic, knee, "L" (Class XXV, Inter. 186).....		1	1	1					1		57
Foreign body, traumatic, leg, "E" (Class XXV, Inter. 186).....		2	2	1					2	1	40
Foreign body, traumatic, leg, "L" (Class XXV, Inter. 186).....	1		1	1					1		84
Foreign body, traumatic, maxilla, "F" (Class XXV, Inter. 186).....		1	1	1					1		34
Foreign body, traumatic, radius, "L" (Class XXV, Inter. 186).....		1	1	1					1		13
Foreign body, traumatic, shoulder, "K" (Class XXV, Inter. 186).....			2						1	1	48
Foreign body, traumatic, skull, "E" (Class XXV, Inter. 186).....		1	1	1					1		38
Foreign body, traumatic, thigh, "E" (Class XXV, Inter. 186).....		1	1	1					1		4
Foreign body, traumatic, thigh, "L" (Class XXV, Inter. 186).....		2	1	1					2		31



TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1920—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Fracture, compound, about wrist, "L" (Class XXV, Inter. 186).....	1			1							6
Fracture, compound, clavicle, "G" (Class XXV, Inter. 186).....		1	1	1					1		49
Fracture, compound, femur, "E" (Class XXV, Inter. 186).....	1	1	4		1		1		3	1	253
Fracture, compound, femur, "G" (Class XXV, Inter. 186).....	2		3	1	1		1		2		349
Fracture, compound, femur, "H" (Class XXV, Inter. 186).....	1	1		1	1						175
Fracture, compound, femur, "J" (Class XXV, Inter. 186).....		1	1						1	1	243
Fracture, compound, femur, "K" (Class XXV, Inter. 186).....	6		5	2			4	2	2	1	743
Fracture, compound, femur, "L" (Class XXV, Inter. 186).....	1	1			1				1		14
Fracture, compound, fibula, "G-R" (Class XXV, Inter. 186).....		1	1	1					1		88
Fracture, compound, fibula, "H" (Class XXV, Inter. 186).....			2	1						1	224
Fracture, compound, fibula, "J" (Class XXV, Inter. 186).....	1									1	306
Fracture, compound, fibula, "L" (Class XXV, Inter. 186).....		1	1						2		29
Fracture, compound, humerus, "G" (Class XXV, Inter. 186).....	1				1						68
Fracture, compound, humerus, "I" (Class XXV, Inter. 186).....		1	1						1	1	149
Fracture, compound, humerus, "K" (Class XXV, Inter. 186).....	4		2	1	1		2		2		461
Fracture, compound, humerus, "L" (Class XXV, Inter. 186).....			1				1				227
Fracture, compound, maxilla, "G" (Class XXV, Inter. 186).....	2	4	3	6	1				2		266
Fracture, compound, maxilla, "I" (Class XXV, Inter. 186).....		3	4	1					4	2	76
Fracture, compound, maxilla, "L" (Class XXV, Inter. 186).....	2	9	12	9	3				9	2	447
Fracture, compound, metacarpal, "G" (Class XXV, Inter. 186).....			1				1				66
Fracture, compound, metacarpal, "H" (Class XXV, Inter. 186).....		3	1	2					2		62
Fracture, compound, metacarpal, "I" (Class XXV, Inter. 186).....	1			1							17
Fracture, compound, metacarpal, "J" (Class XXV, Inter. 186).....	2			2							4
Fracture, compound, metacarpal, "L" (Class XXV, Inter. 186).....	2			2							9
Fracture, compound, metatarsal, "E" (Class XXV, Inter. 186).....	1	1	1	1			1		1		68
Fracture, compound, metatarsal, "G" (Class XXV, Inter. 186).....		1	1	1						1	47
Fracture, compound, metatarsal, "H" (Class XXV, Inter. 186).....		1	2	2					1		68
Fracture, compound, metatarsal, "I" (Class XXV, Inter. 186).....	2	4	1	1	1		1		3		206
Fracture, compound, metatarsal, "L" (Class XXV, Inter. 186).....	2	2	1				1		2		60
Fracture, compound, multiple, "G" (Class XXV, Inter. 186).....	1	1							1	1	25
Fracture, compound, multiple, "L" (Class XXV, Inter. 186).....	1				1						10
Fracture, compound, nasal bone, "B" (Class XXV, Inter. 186).....		1	1		1				1		3
Fracture, compound, nasal bone, "G" (Class XXV, Inter. 186).....		3	3	3	2				1		52
Fracture, compound, nasal bone, "H" (Class XXV, Inter. 186).....	1				1						3
Fracture, compound, nasal bone, "I" (Class XXV, Inter. 186).....	2	2	2						2		95
Fracture, compound, nasal bone, "J" (Class XXV, Inter. 186).....	1			1							16
Fracture, compound, nasal bone, "L" (Class XXV, Inter. 186).....	6	5	5	2					4		147
Fracture, compound, patella, "H" (Class XXV, Inter. 186).....			2	2							86
Fracture, compound, pelvis, "G" (Class XXV, Inter. 186).....			1		1						0
Fracture, compound, phalanges, foot, "I" (Class XXV, Inter. 186).....		6	5	6					4	1	197

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1920—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Fracture, compound, phalanges, foot, "J" (Class XXV, Inter. 186).....		2		2							2
Fracture, compound, phalanges, foot, "L" (Class XXV, Inter. 186).....		2	3	2					2		55
Fracture, compound, phalanges, hand, "E" (Class XXV, Inter. 186).....		1		1							53
Fracture, compound, phalanges, hand, "G" (Class XXV, Inter. 186).....		2		2							29
Fracture, compound, phalanges, hand, "H" (Class XXV, Inter. 186).....	1	10	5	11					4	1	367
Fracture, compound, phalanges, hand, "I" (Class XXV, Inter. 186).....	4	17	2	19					3	1	459
Fracture, compound, phalanges, hand, "J" (Class XXV, Inter. 186).....		3	2	3	1				1		44
Fracture, compound, phalanges, hand, "L" (Class XXV, Inter. 186).....	1	4	4	7					1	1	163
Fracture, compound, radius, "G" (Class XXV, Inter. 186).....	1	1		2							37
Fracture, compound, radius, "H" (Class XXV, Inter. 186).....		1	1	1					1		30
Fracture, compound, radius and ulna, "G" (Class XXV, Inter. 186).....	1	1	1						2	1	121
Fracture, compound, radius and ulna, "H" (Class XXV, Inter. 186).....		1		1							66
Fracture, compound, radius and ulna, "I" (Class XXV, Inter. 186).....	1		1				2				177
Fracture, compound, radius and ulna, "K" (Class XXV, Inter. 186).....	1		2	1			1		1		30
Fracture, compound, radius and ulna, "L" (Class XXV, Inter. 186).....	1		1			2					32
Fracture, compound, rib, "K" (Class XXV, Inter. 186).....	1		2				1		2		45
Fracture, compound, skull, "F" (Class XXV, Inter. 186).....	2		2	2		1			1		110
Fracture, compound, skull, "G" (Class XXV, Inter. 186).....		6	3	3		4			1	1	76
Fracture, compound, skull, "G-R" (Class XXV, Inter. 186).....		3				3					1
Fracture, compound, skull, "H" (Class XXV, Inter. 186).....	1		2	1					2		264
Fracture, compound, skull, "H-R" (Class XXV, Inter. 186).....		2	1			2			1		0
Fracture, compound, skull, "I" (Class XXV, Inter. 186).....		5	2			4	1		2		115
Fracture, compound, skull, "I-R" (Class XXV, Inter. 186).....			1		1						0
Fracture, compound, skull, "L" (Class XXV, Inter. 186).....	1	7	9	3	2	2			8	2	271
Fracture, compound, tibia, "E" (Class XXV, Inter. 186).....	1						1				110
Fracture, compound, tibia, "G" (Class XXV, Inter. 186).....	3	1	2	2	2		1		1		586
Fracture, compound, tibia, "H" (Class XXV, Inter. 186).....	1		1						2		75
Fracture, compound, tibia, "I" (Class XXV, Inter. 186).....	2	2	2	2	1				3		580
Fracture, compound, tibia, "J" (Class XXV, Inter. 186).....	1							1			0
Fracture, compound, tibia, "K" (Class XXV, Inter. 186).....	1				1						8
Fracture, compound, tibia, "L" (Class XXV, Inter. 186).....		3	2	1	1		1		2		408
Fracture, compound, tibia and fibula, "E" (Class XXV, Inter. 186).....	1		1				1		1		271
Fracture, compound, tibia and fibula, "F" (Class XXV, Inter. 186).....	2			1						1	378

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1920—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Fracture, compound, tibia and fibula, "G" (Class XXV, Inter. 186).....	4	3	4				1		7	3	1,000
Fracture, compound, tibia and fibula, "G-R" (Class XXV, Inter. 186).....	1	2	1				1		2	1	533
Fracture, compound, tibia and fibula, "H" (Class XXV, Inter. 186).....	2	2	3	1					3	3	888
Fracture, compound, tibia and fibula, "I" (Class XXV, Inter. 186).....	3	3	7				2		9	2	633
Fracture, compound, tibia and fibula, "K" (Class XXV, Inter. 186).....	3		3				2		3	1	560
Fracture, compound, tibia and fibula, "L" (Class XXV, Inter. 186).....	6	5	12	1	4		5		8	5	1,850
Fracture, compound, upper extremity, "K" (Class XXV, Inter. 186).....	1					1					25
Fracture, simple, about ankle, "G" (Class XXV, Inter. 186).....	2	11	13	9	5				9	3	472
Fracture, simple, about ankle, "G-R" (Class XXV, Inter. 186).....		1	2	1	1				1		67
Fracture, simple, about ankle, "H" (Class XXV, Inter. 186).....			1	1							22
Fracture, simple, about ankle, "I" (Class XXV, Inter. 186).....		1	2						1	2	25
Fracture, simple, about ankle, "J" (Class XXV, Inter. 186).....		9	9	8	3				7		250
Fracture, simple, about ankle, "L" (Class XXV, Inter. 186).....		1	3	2	1				1		74
Fracture, simple, about elbow, "L" (Class XXV, Inter. 186).....		2	1	2					1		27
Fracture, simple, about shoulder, "G" (Class XXV, Inter. 186).....	1					1					5
Fracture, simple, about wrist, "G" (Class XXV, Inter. 186).....	3	22	19	16	5		1	1	17	4	620
Fracture, simple, about wrist, "H" (Class XXV, Inter. 186).....		5	4	7					2		154
Fracture, simple, about wrist, "H-R" (Class XXV, Inter. 186).....		1		1							4
Fracture, simple, about wrist, "I" (Class XXV, Inter. 186).....	1	2	2	3					2		50
Fracture, simple, about wrist, "J" (Class XXV, Inter. 186).....	1	7	3	7					2	2	199
Fracture, simple, about wrist, "L" (Class XXV, Inter. 186).....		3		3							44
Fracture, simple, clavicle, "G" (Class XXV, Inter. 186).....	4	49	41	40	6			2	36	10	1,768
Fracture, simple, clavicle, "H" (Class XXV, Inter. 186).....	1	3	3	3					3	1	215
Fracture, simple, clavicle, "H-R" (Class XXV, Inter. 186).....		1	1						1	1	21
Fracture, simple, clavicle, "I" (Class XXV, Inter. 186).....		3	3	4					2		126
Fracture, simple, clavicle, "J" (Class XXV, Inter. 186).....	4	23	18	20	2		1		16	6	935
Fracture, simple, clavicle, "L" (Class XXV, Inter. 186).....	3	13	12	16	3				7	2	707
Fracture, simple, femur, "G" (Class XXV, Inter. 186).....	8	13	16	11	7	2	3		9	5	2,029
Fracture, simple, femur, "G-R" (Class XXV, Inter. 186).....		1	1	1					1		131
Fracture, simple, femur, "H" (Class XXV, Inter. 186).....	1	3	2	1					4	1	416
Fracture, simple, femur, "I" (Class XXV, Inter. 186).....	1	1	1			1			1	1	228
Fracture, simple, femur, "L" (Class XXV, Inter. 186).....	4	7	18	7	5	1	4		9	3	1,635
Fracture, simple, femur, "L-U" (Class XXV, Inter. 186).....			1	1							0
Fracture, simple, fibula, "G" (Class XXV, Inter. 186).....	7	26	42	31	12		2	1	25	4	2,264
Fracture, simple, fibula, "H" (Class XXV, Inter. 186).....		5	12	6	4				7		372
Fracture, simple, fibula, "I" (Class XXV, Inter. 186).....		4	2	4					2		124
Fracture, simple, fibula, "J" (Class XXV, Inter. 186).....	2	33	25	23	6				18	3	1,470

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1920—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Fracture, simple, fibula, "L" (Class XXV, Inter. 186).....	5	13	13	15	6				9	1	782
Fracture, simple, hip, "L" (Class XXV, Inter. 186).....			1		1						2
Fracture, simple, humerus, "G" (Class XXV, Inter. 186).....	4	22	22	22	2		2		18	4	1,636
Fracture, simple, humerus, "G-R" (Class XXV, Inter. 186).....	2		9	2	1				7	1	586
Fracture, simple, humerus, "H" (Class XXV, Inter. 186).....	2	2	7		1		1		7	2	580
Fracture, simple, humerus, "I" (Class XXV, Inter. 186).....	1	10	9	10					9	1	565
Fracture, simple, humerus, "L" (Class XXV, Inter. 186).....	1	3	3	3	1				3		145
Fracture, simple, maxilla, "G" (Class XXV, Inter. 186).....	5	9	10	12	3				7	2	435
Fracture, simple, maxilla, "H" (Class XXV, Inter. 186).....		1	1	1					1		54
Fracture, simple, maxilla, "I" (Class XXV, Inter. 186).....		1	1	2							9
Fracture, simple, maxilla, "J" (Class XXV, Inter. 186).....	1	18	15	18	2				13	1	796
Fracture, simple, maxilla, "L" (Class XXV, Inter. 186).....	3	55	58	52	12			1	45	6	1,957
Fracture, simple, metacarpal, "G" (Class XXV, Inter. 186).....	2	51	25	51	4				18	5	995
Fracture, simple, metacarpal, "H" (Class XXV, Inter. 186).....		5	8	7			1		5		254
Fracture, simple, metacarpal, "I" (Class XXV, Inter. 186).....	1	17	5	20					3		331
Fracture, simple, metacarpal, "J" (Class XXV, Inter. 186).....	2	95	41	91	2		1	1	35	8	2,067
Fracture, simple, metacarpal, "L" (Class XXV, Inter. 186).....	4	96	34	91	1				38	4	1,827
Fracture, simple, metatarsal, "G" (Class XXV, Inter. 186).....	3	20	23	17	6		1	1	15	6	1,658
Fracture, simple, metatarsal, "H" (Class XXV, Inter. 186).....	2	2	2	3	1				1	1	51
Fracture, simple, metatarsal, "I" (Class XXV, Inter. 186).....		19	21	18	5		1		11	5	729
Fracture, simple, metatarsal, "J" (Class XXV, Inter. 186).....		5		3	1				1		67
Fracture, simple, metatarsal, "L" (Class XXV, Inter. 186).....	2	10	17	12	5		2	1	7	2	821
Fracture, simple, multiple, "G" (Class XXV, Inter. 186).....	1	4	3	1		1	1		3	2	169
Fracture, simple, multiple, "G-R" (Class XXV, Inter. 186).....		1	1						1	1	62
Fracture, simple, multiple, "H" (Class XXV, Inter. 186).....		1	1						1	1	175
Fracture, simple, multiple, "I" (Class XXV, Inter. 186).....		1	3		2				1	1	216
Fracture, simple, multiple, "L" (Class XXV, Inter. 186).....		3	8	1	2	1			6	1	193
Fracture, simple, nasal bone, "G" (Class XXV, Inter. 186).....	1	12	7	10	2				7	1	144
Fracture, simple, nasal bone, "G-R" (Class XXV, Inter. 186).....		1		1							16
Fracture, simple, nasal bone, "H" (Class XXV, Inter. 186).....		3	1	2					2		13
Fracture, simple, nasal bone, "I" (Class XXV, Inter. 186).....	1	27	20	23	3				19	3	478
Fracture, simple, nasal bone, "L" (Class XXV, Inter. 186).....	2	41	23	39	8				17	2	330
Fracture, simple, patella, "G" (Class XXV, Inter. 186).....	8	9	17	11	6		1		12	4	1,406
Fracture, simple, patella, "H" (Class XXV, Inter. 186).....		1		1							64
Fracture, simple, patella, "I" (Class XXV, Inter. 186).....	1	2	3	3					2	1	437
Fracture, simple, patella, "L" (Class XXV, Inter. 186).....	1	2	2	1	1				2	1	170
Fracture, simple, pelvis, "G" (Class XXV, Inter. 186).....		2		1							90
Fracture, simple, pelvis, "H" (Class XXV, Inter. 186).....		1	2	1	1				1		39
Fracture, simple, pelvis, "I" (Class XXV, Inter. 186).....	1		1	2							42
Fracture, simple, pelvis, "L" (Class XXV, Inter. 186).....	1	6	3	6	1				2	1	668

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1920—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Fracture, simple, phalanges, foot, "G" (Class XXV, Inter. 186).....		3	1	2	1				1		55
Fracture, simple, phalanges, foot, "H" (Class XXV, Inter. 186).....		2		2							16
Fracture, simple, phalanges, foot, "I" (Class XXV, Inter. 186).....		20	6	20	1				4	1	462
Fracture, simple, phalanges, foot, "J" (Class XXV, Inter. 186).....		5	2	5					2		82
Fracture, simple, phalanges, foot, "L" (Class XXV, Inter. 186).....	3	17	7	17	2				6	2	358
Fracture, simple, phalanges, hand, "G" (Class XXV, Inter. 186).....		16	7	18					4	1	339
Fracture, simple, phalanges, hand, "H" (Class XXV, Inter. 186).....		4	2	5					1		95
Fracture, simple, phalanges, hand, "I" (Class XXV, Inter. 186).....	2	23	11	22	5				7	2	670
Fracture, simple, phalanges, hand, "J" (Class XXV, Inter. 186).....		31	9	28	1				11		518
Fracture, simple, phalanges, hand, "L" (Class XXV, Inter. 186).....	4	14	2	16					4		133
Fracture, simple, radius, "F" (Class XXV, Inter. 186).....		1	1	1					1		75
Fracture, simple, radius, "G" (Class XXV, Inter. 186).....	9	81	61	81	14		1	1	50	4	4,132
Fracture, simple, radius, "H" (Class XXV, Inter. 186).....	5	35	20	32	4				18	6	1,104
Fracture, simple, radius, "H-R" (Class XXV, Inter. 186).....		1	1	1					1		36
Fracture, simple, radius, "I" (Class XXV, Inter. 186).....		1	1	2							25
Fracture, simple, radius, "J" (Class XXV, Inter. 186).....		26	18	23	4				15	2	766
Fracture, simple, radius, "L" (Class XXV, Inter. 186).....	4	32	26	31	5				20	6	1,355
Fracture, simple, radius and ulna, "G" (Class XXV, Inter. 186).....	3	14	20	18	2		2		13	2	1,189
Fracture, simple, radius and ulna, "G-R" (Class XXV, Inter. 186).....		1		1							32
Fracture, simple, radius and ulna, "H" (Class XXV, Inter. 186).....		5	9	5	2				6	1	281
Fracture, simple, radius and ulna, "I" (Class XXV, Inter. 186).....		1		1							21
Fracture, simple, radius and ulna, "J" (Class XXV, Inter. 186).....		7	4	3					6	2	271
Fracture, simple, radius and ulna, "L" (Class XXV, Inter. 186).....	1	9	4	9	1		1		3		278
Fracture, simple, rib, "G" (Class XXV, Inter. 186).....	1	27	12	26	4				9	1	331
Fracture, simple, rib, "G-R" (Class XXV, Inter. 186).....		1			1						46
Fracture, simple, rib, "H" (Class XXV, Inter. 186).....		2	4	2	2				2		38
Fracture, simple, rib, "I" (Class XXV, Inter. 186).....		7	2	6					3		204
Fracture, simple, rib, "J" (Class XXV, Inter. 186).....		13	9	12	2				8		165
Fracture, simple, rib, "L" (Class XXV, Inter. 186).....		6	4	4	2				2	2	170
Fracture, simple, scapula, "G" (Class XXV, Inter. 186).....	1	5	4	4	2				4		216
Fracture, simple, scapula, "H" (Class XXV, Inter. 186).....		1	1		1				1		80
Fracture, simple, scapula, "J" (Class XXV, Inter. 186).....		2	1	1					2		9
Fracture, simple, scapula, "L" (Class XXV, Inter. 186).....		4	2	2			1		2	1	229
Fracture, simple, skull, "B" (Class XXV, Inter. 186).....		1	1	1					1		50
Fracture, simple, skull, "G" (Class XXV, Inter. 186).....	1	9	16	3	7	5	1		9	1	299
Fracture, simple, skull, "H" (Class XXV, Inter. 186).....		2	2	1					2	1	33
Fracture, simple, skull, "I" (Class XXV, Inter. 186).....		2	4		3	2			1		12
Fracture, simple, skull, "J" (Class XXV, Inter. 186).....		2	1	2					1		8
Fracture, simple, skull, "L" (Class XXV, Inter. 186).....	1	10	10	6	4	5			6		237
Fracture, simple, tibia, "G" (Class XXV, Inter. 186).....	2	20	20	17	8		1		13	3	1,168

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1920—Contd.

Diagnoses.	Rem.	A.	R.A.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Fracture, simple, tibia, "G-R" (Class XXV, Inter. 186).....			7	1					6		177
Fracture, simple, tibia, "H" (Class XXV, Inter. 186).....		2	2	3					1		143
Fracture, simple, tibia, "I" (Class XXV, Inter. 186).....		5	2	5	1				1		242
Fracture, simple, tibia, "J" (Class XXV, Inter. 186).....	4	7	10	11	2				7	1	798
Fracture, simple, tibia, "L" (Class XXV, Inter. 186).....	5	15	18	17	7				11	3	1,832
Fracture, simple, tibia and fibula, "G" (Class XXV, Inter. 186)...	4	9	16	12	6			2	7	2	1,121
Fracture, simple, tibia and fibula, "G-R" (Class XXV, Inter. 186)...	1		2						2		347
Fracture, simple, tibia and fibula, "H" (Class XXV, Inter. 186)...	4		2	2				2	2		267
Fracture, simple, tibia and fibula, "I" (Class XXV, Inter. 186)...	1							1			85
Fracture, simple, tibia and fibula, "J" (Class XXV, Inter. 186)...		10	12	5	2				8	7	976
Fracture, simple, tibia and fibula, "L" (Class XXV, Inter. 186)...	4	7	10	10				1	9	1	788
Fracture, simple, tibia and fibula, "L-R" (Class XXV, Inter. 186)...			1								46
Fracture, simple, ulna, "G" (Class XXV, Inter. 186).....	4	23	18	21	5			2	16	1	864
Fracture, simple, ulna, "G-R" (Class XXV, Inter. 186).....		1	1	1					1		77
Fracture, simple, ulna, "H" (Class XXV, Inter. 186).....		1	1						1	1	143
Fracture, simple, ulna, "J" (Class XXV, Inter. 186).....		8	7	7	2				5	1	217
Fracture, simple, ulna, "L" (Class XXV, Inter. 186).....	1	5	3	6					2	1	241
Fracture, simple, vertebra, "G" (Class XXV, Inter. 186).....	1	5	6	2	1			2	4	3	862
Fracture, simple, vertebra, "G-R" (Class XXV, Inter. 186)...	1		3	1				1	2		223
Fracture, simple, vertebra, "J" (Class XXV, Inter. 186).....		1	1	1					1		80
Fracture, simple, vertebra, "L" (Class XXV, Inter. 186).....	1	2	3		2	2			2		115
Fracture, simple, vertebra, "L" (Class XXV, Inter. 186).....	1	4	4	2	2	2			3		459
Frostbite, ankle, "L" (Class XXV, Inter. 186).....		1		1							11
Frostbite, ear, "L" (Class XXV, Inter. 186).....	1			1							46
Frostbite, finger, "L" (Class XXV, Inter. 186).....		3	3	2	1				3		89
Frostbite, foot, "L" (Class XXV, Inter. 186).....		1		1							16
Frostbite, forearm, "L" (Class XXV, Inter. 186).....		1	2	2					1		64
Frostbite, hand, "L" (Class XXV, Inter. 186).....		1		1							5
Frostbite, multiple, "L" (Class XXV, Inter. 186).....	1				1						188
Heat cramps, "J" (Class XXV, Inter. 186).....		1		1							2
Heat cramps, "L" (Class XXV, Inter. 186).....	49	5	49	1					4		114
Hematocoele, tunica vaginalis, traumatic, "L" (Class XXV, Inter. 186).....		1								1	1
Hematoma, traumatic, ear, "J" (Class XXV, Inter. 186).....	1	1							1	1	8
Hematoma, traumatic, eye, "J" (Class XXV, Inter. 186).....	1	1	1						1		18
Hematoma, traumatic, foot, "J" (Class XXV, Inter. 186).....	1		1								8
Hematoma, traumatic, hand, "I" (Class XXV, Inter. 186).....	1		1								4
Hematoma, traumatic, head, "J" (Class XXV, Inter. 186).....	1	3	1	1					2		21
Hematoma, traumatic, head, "L" (Class XXV, Inter. 186).....	1	2	1	1					1		12
Hematoma, traumatic, leg, "G" (Class XXV, Inter. 186).....	1	1	1						1		46

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1920—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Hematoma, traumatic, nose, "G" (Class XXV, Inter. 186).....		1	2	1	1				1		12
Hematoma, traumatic, scrotum, "L" (Class XXV, Inter. 186).....		1		1							101
Hematoma, traumatic, thigh, "G" (Class XXV, Inter. 186).....		1	1	1					1		37
Hematoma, traumatic, tongue, "J" (Class XXV, Inter. 186).....		1	2	1	1				1		8
Hemorrhage into eyeball, traumatic, "J" (Class XXV, Inter. 186).....		1		1							1
Hemorrhage into eyeball, traumatic, "L" (Class XXV, Inter. 186).....		5	6	6	1				4		80
Hemorrhage into joint, traumatic, elbow, "G" (Class XXV, Inter. 186).....		1	1	1					1		11
Hemorrhage under conjunctiva, traumatic, "H" (Class XXV, Inter. 186).....		1		1							6
Hemorrhage under conjunctiva, traumatic, "L" (Class XXV, Inter. 186).....	1	7	7	8	3				4		91
Intracranial injury, "G" (Class XXV, Inter. 186).....		10	14	7	5	1			9	2	276
Intracranial injury, "H" (Class XXV, Inter. 186).....	1	3	7	1	2		2		6		331
Intracranial injury, "J" (Class XXV, Inter. 186).....		8	8	8	3				5		85
Intracranial injury, "L" (Class XXV, Inter. 186).....	1	7	10	8	4				6		167
Intraspinal injury, "G" (Class XXV, Inter. 186).....		2	4	1		1	1		2	1	201
Intraspinal injury, "G-R" (Class XXV, Inter. 186).....		1	2		1	1			1		6
Intraspinal injury, "I" (Class XXV, Inter. 186).....	1	1	3						3	2	476
Intraspinal injury, "J" (Class XXV, Inter. 186).....		2	2	2	1				1		49
Intraspinal injury, "L" (Class XXV, Inter. 186).....		3	4		2	2			2	1	111
Lightning stroke, "L" (Class XXV, Inter. 186).....		2		2							2
Multiple injuries, extreme, "E" (Class XXV, Inter. 186).....			3				1		2		355
Multiple injuries, extreme, "G" (Class XXV, Inter. 186).....	2	4	6	1		2	1		5	3	755
Multiple injuries, extreme, "G-R" (Class XXV, Inter. 186).....		3	1			3			1		0
Multiple injuries, extreme, "H" (Class XXV, Inter. 186).....	1			1							72
Multiple injuries, extreme, "I" (Class XXV, Inter. 186).....		2				2					0
Multiple injuries, extreme, "L" (Class XXV, Inter. 186).....		5	1			5			1		1
Rupture, artery, traumatic, "G" (Class XXV, Inter. 186).....		1				1					0
Rupture, bladder, traumatic, "G" (Class XXV, Inter. 186).....		4	4	4					4		234
Rupture, bladder, traumatic, "L" (Class XXV, Inter. 186).....		1	1		1				1		131
Rupture, globe, eye, traumatic, "F" (Class XXV, Inter. 186).....			1				1				0
Rupture, intestine, traumatic, "I" (Class XXV, Inter. 186).....		1	2		1	1			1		2
Rupture, intra-articular cartilage, traumatic, "G" (Class XXV, Inter. 186).....	1				1						87
Rupture, intra-articular cartilage, traumatic, "J" (Class XXV, Inter. 186).....	1		1	2							11
Rupture, kidney, traumatic, "G" (Class XXV, Inter. 186).....	1	1	2	1	1	1			1		9
Rupture, kidney, traumatic, "J" (Class XXV, Inter. 186).....		1	2	1	1				1		18
Rupture, kidney, traumatic, "L" (Class XXV, Inter. 186).....		2	4	1	1				3	1	189
Rupture, ligament, foot, traumatic, "H" (Class XXV, Inter. 186).....		1	1				1		1		62

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1920—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont. Days.
<b>INJURIES—Continued.</b>										
Rupture, liver, traumatic, "L" (Class XXV, Inter. 186).....		1				1				1
Rupture, muscle, arm, traumatic, "H" (Class XXV, Inter. 186).....		1		1						43
Rupture, muscle, foot, traumatic, "L" (Class XXV, Inter. 186).....		1							1	16
Rupture, muscle, leg, traumatic, "G" (Class XXV, Inter. 186).....		1			1					34
Rupture, muscle, leg, traumatic, "L" (Class XXV, Inter. 186).....		1	1					1	1	22
Rupture, muscle, unqualified, traumatic, "J" (Class XXV, Inter. 186).....		1		1						1
Rupture, tympanum, traumatic, "E" (Class XXV, Inter. 186).....		3	1	3					1	25
Rupture, tympanum, traumatic, "J" (Class XXV, Inter. 186).....		4	4	3	3				2	36
Rupture, tympanum, traumatic, "L" (Class XXV, Inter. 186).....		2	2		2				2	72
Rupture, urethra, traumatic, "G" (Class XXV, Inter. 186).....		1	2	1	1				1	19
Smoke inhalation, "C" (Class XXV, Inter. 186).....		5	1	5					1	13
Smoke inhalation, "L" (Class XXV, Inter. 186).....		2		2						10
Sprain, ankle, "G" (Class XXV, Inter. 186).....	6	345	94	344	30				62	9 3,386
Sprain, ankle, "G-R" (Class XXV, Inter. 186).....		2	2	2	1				1	6
Sprain, ankle, "H" (Class XXV, Inter. 186).....	1	5	2	6					1	1 74
Sprain, ankle, "I" (Class XXV, Inter. 186).....	1	8	4	8	2				2	1 144
Sprain, ankle, "J" (Class XXV, Inter. 186).....	1	218	68	219	9				55	4 2,050
Sprain, ankle, "L" (Class XXV, Inter. 186).....	1	114	26	114	7				15	5 982
Sprain, elbow, "G" (Class XXV, Inter. 186).....		20	2	20					2	124
Sprain, elbow, "H" (Class XXV, Inter. 186).....		1		1						11
Sprain, elbow, "I" (Class XXV, Inter. 186).....		1		1						1
Sprain, elbow, "J" (Class XXV, Inter. 186).....		5	8	5	4				4	94
Sprain, elbow, "L" (Class XXV, Inter. 186).....		8		7						1 24
Sprain, hip, "G" (Class XXV, Inter. 186).....	1	16	10	16	3				7	1 273
Sprain, hip, "I-R" (Class XXV, Inter. 186).....			3	1	1				1	12
Sprain, hip, "J" (Class XXV, Inter. 186).....		3		3						21
Sprain, hip, "L" (Class XXV, Inter. 186).....	1	24	24	20	9		1		16	3 980
Sprain, knee, "G" (Class XXV, Inter. 186).....	2	94	33	97	9		1		20	2 1,372
Sprain, knee, "G-R" (Class XXV, Inter. 186).....		1	1	1	1					40
Sprain, knee, "H" (Class XXV, Inter. 186).....		1		1						9
Sprain, knee, "I" (Class XXV, Inter. 186).....		3		3						5
Sprain, knee, "J" (Class XXV, Inter. 186).....	1	79	45	82	6				35	1 1,088
Sprain, knee, "L" (Class XXV, Inter. 186).....	1	36	14	35	2			1	12	1 432
Sprain, metacarpal, "G" (Class XXV, Inter. 186).....		3		3						16
Sprain, metacarpal, "I" (Class XXV, Inter. 186).....		1	2	1	1				1	14
Sprain, metacarpal, "J" (Class XXV, Inter. 186).....		3	1	8				1		95
Sprain, metacarpal, "L" (Class XXV, Inter. 186).....		1		1						17
Sprain, metatarsal, "G" (Class XXV, Inter. 186).....		8	1	5	1				2	1 43
Sprain, metatarsal, "I" (Class XXV, Inter. 186).....		2		2						38
Sprain, metatarsal, "J" (Class XXV, Inter. 186).....	1	7		8						43



TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1920—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Sprain, metatarsal, "L" (Class XXV, Inter. 186)		4	1	4				1			12
Sprain, multiple, "G" (Class XXV, Inter. 186)		1	2	1	1				1		32
Sprain, multiple, "G-R" (Class XXV, Inter. 186)		1	2	1	1				1		4
Sprain, multiple, "L" (Class XXV, Inter. 186)		1	1	1					1		3
Sprain, phalanges, foot, "G" (Class XXV, Inter. 186)		4	1	3	1				1		22
Sprain, phalanges, foot, "L" (Class XXV, Inter. 186)		5		4						1	30
Sprain, phalanges, hand, "G" (Class XXV, Inter. 186)		5		5							28
Sprain, phalanges, hand, "I" (Class XXV, Inter. 186)		1	2	2					1		30
Sprain, phalanges, hand, "J" (Class XXV, Inter. 186)		12	2	11	1				2		107
Sprain, phalanges, hand, "L" (Class XXV, Inter. 186)		8	2	8	1				1		71
Sprain, shoulder, "E" (Class XXV, Inter. 186)		1		1							70
Sprain, shoulder, "G" (Class XXV, Inter. 186)		15	8	13	6				5		150
Sprain, shoulder, "H" (Class XXV, Inter. 186)		1		1							3
Sprain, shoulder, "J" (Class XXV, Inter. 186)		17	5	17	3				2		188
Sprain, shoulder, "L" (Class XXV, Inter. 186)		11	7	11	2				5		113
Sprain, vertebral, "G" (Class XXV, Inter. 186)		8	4	6	2		1		3		200
Sprain, vertebral, "J" (Class XXV, Inter. 186)		1	3	2	1		1				44
Sprain, vertebral, "L" (Class XXV, Inter. 186)	1	4	3	5	1				2		132
Sprain, wrist, "E" (Class XXV, Inter. 186)		1		1							4
Sprain, wrist, "G" (Class XXV, Inter. 186)	1	81	18	80	9				10	1	665
Sprain, wrist, "H" (Class XXV, Inter. 186)		7	6	6	3				3	1	77
Sprain, wrist, "I" (Class XXV, Inter. 186)		3	1	3	1						17
Sprain, wrist, "J" (Class XXV, Inter. 186)		24	6	23	2				5		133
Sprain, wrist, "L" (Class XXV, Inter. 186)	2	24	4	25	2			1	2		210
Strain, abdominal, "G" (Class XXV, Inter. 186)		5		5							21
Strain, abdominal, "H" (Class XXV, Inter. 186)		2		2							22
Strain, abdominal, "J" (Class XXV, Inter. 186)		1	1	1					1		22
Strain, abdominal, "L" (Class XXV, Inter. 186)		15	8	15	4				4		108
Strain, ankle, "G" (Class XXV, Inter. 186)		3		3							22
Strain, ankle, "L" (Class XXV, Inter. 186)		3		3							11
Strain, arm, "L" (Class XXV, Inter. 186)		3	2	3	1				1		18
Strain, back, "G" (Class XXV, Inter. 186)	1	22	16	23	5				9	2	303
Strain, back, "J" (Class XXV, Inter. 186)	1	13	9	15	4				4		143
Strain, back, "L" (Class XXV, Inter. 186)	2	70	24	69	10				16	1	721
Strain, chest, "G" (Class XXV, Inter. 186)		1		1							12
Strain, chest, "J" (Class XXV, Inter. 186)		1		1							8
Strain, chest, "L" (Class XXV, Inter. 186)		2	2	2	1				1		28
Strain, foot, "G" (Class XXV, Inter. 186)		2	1	2						1	117
Strain, foot, "I" (Class XXV, Inter. 186)		1		1							1
Strain, foot, "J" (Class XXV, Inter. 186)		1	1	2							8

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1920—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Strain, foot, "L" (Class XXV, Inter. 186)	1	3.	3	4	2				1		53
Strain, forearm, "G" (Class XXV, Inter. 186)		2		2							13
Strain, forearm, "J" (Class XXV, Inter. 186)		1		1							5
Strain, knee, "G" (Class XXV, Inter. 186)		1		1							5
Strain, knee, "L" (Class XXV, Inter. 186)		1		1							22
Strain, leg, "G" (Class XXV, Inter. 186)	1	3	1	4						1	70
Strain, leg, "J" (Class XXV, Inter. 186)		4	1	4					1		11
Strain, leg, "L" (Class XXV, Inter. 186)		2		2							9
Strain, multiple, "L-U" (Class XXV, Inter. 186)		1		1							4
Strain, neck, "J" (Class XXV, Inter. 186)		2		2							17
Strain, neck, "L" (Class XXV, Inter. 186)		3		2						1	5
Strain, shoulder, "G" (Class XXV, Inter. 186)		6	1	5	1				1		41
Strain, shoulder, "L" (Class XXV, Inter. 186)		5		5							17
Strain, thigh, "G" (Class XXV, Inter. 186)		5	2	3	1				3		16
Strain, thigh, "G-R" (Class XXV, Inter. 186)		2	2	2					2		13
Strain, thigh, "J" (Class XXV, Inter. 186)		4	2	5	1						20
Strain, thigh, "L" (Class XXV, Inter. 186)		4	5	5					3	1	67
Strain, wrist, "G" (Class XXV, Inter. 186)		2		2							15
Strangulation, "A" (Class XXV, Inter. 186)		1				1					0
Strangulation, "L-U" (Class XXV, Inter. 186)		1				1					0
Submersion (nonfatal), "D" (Class XXV, Inter. 186)	22	15		22	4				11		67
Submersion (nonfatal), "D-R" (Class XXV, Inter. 186)	1	1			1				1		0
Submersion (nonfatal), "J" (Class XXV, Inter. 186)	1	2		1	1				1		26
Sunburn, arm, "L" (Class XXV, Inter. 186)	3			3							11
Sunburn, back, "L" (Class XXV, Inter. 186)	1			1							4
Sunburn, foot, "L" (Class XXV, Inter. 186)	2			2							3
Sunburn, leg, "J" (Class XXV, Inter. 186)	1			1							1
Sunburn, leg, "L" (Class XXV, Inter. 186)	4			4							28
Sunburn, multiple, "J" (Class XXV, Inter. 186)	10			10							31
Sunburn, multiple, "L" (Class XXV, Inter. 186)	24	1		24					1		77
Sunburn, neck, "L" (Class XXV, Inter. 186)	1			1							3
Sunburn, shoulder, "L" (Class XXV, Inter. 186)	6	1		6					1		19
Sunstroke, "J" (Class XXV, Inter. 186)	1			1							4
Sunstroke, "L" (Class XXV, Inter. 186)	6	11		7	3				7		228
Synovitis, ankle, "G" (Class XXV, Inter. 186)	1			1							5
Synovitis, ankle, "J" (Class XXV, Inter. 186)	1	1						1	1		
Synovitis, ankle, "L" (Class XXV, Inter. 186)	2	3		3					2		26
Synovitis, elbow, "L" (Class XXV, Inter. 186)	1			1							11
Synovitis, hip, "G" (Class XXV, Inter. 186)	1	2		1	1				1		25
Synovitis, hip, "J" (Class XXV, Inter. 186)	1	1		1					1		9

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1920—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Synovitis, knee, "F" (Class XXV, Inter. 186)			2	1					1		37
Synovitis, knee, "G" (Class XXV, Inter. 186)	5	53	35	62	3		3	1	21	3	1,490
Synovitis, knee, "I" (Class XXV, Inter. 186)		2		2							23
Synovitis, knee, "J" (Class XXV, Inter. 186)	2	28	24	29	7				15	1	555
Synovitis, knee, "L" (Class XXV, Inter. 186)	5	13	16	17	1		1		14	1	573
Synovitis, metacarpal, "L" (Class XXV, Inter. 186)		1	2	1	2						3
Synovitis, metatarsal, "L" (Class XXV, Inter. 186)		1	2	1					2		14
Synovitis, phalanges, hand, "G" (Class XXV, Inter. 186)		1	1	1					1		64
Synovitis, shoulder, "G" (Class XXV, Inter. 186)		1	2	1	1				1		14
Typhoid fever, "L" (Class XXV, Inter. 186)		13	1	13					1		55
Torsion, spermatic cord, traumatic, "J" (Class XXV, Inter. 186)		1	1	1					1		4
Wound, incised, abdominal, "B" (Class XXV, Inter. 186)		2	1	1		1			1		15
Wound, incised, abdominal, "L" (Class XXV, Inter. 186)	1	2	1	3					1		66
Wound, incised, arm, "G" (Class XXV, Inter. 186)		1								1	5
Wound, incised, arm, "L" (Class XXV, Inter. 186)	1	3	1	3					1	1	299
Wound, incised, back, "L" (Class XXV, Inter. 186)		5	4	4					4	1	94
Wound, incised, ear, "L" (Class XXV, Inter. 186)		1		1							11
Wound, incised, elbow, "G" (Class XXV, Inter. 186)		1		1							10
Wound, incised, elbow, "L" (Class XXV, Inter. 186)		2		2							26
Wound, incised, eye and adnexa, "F" (Class XXV, Inter. 186)		1	2	1					2		24
Wound, incised, eye and adnexa, "G" (Class XXV, Inter. 186)		2		2							4
Wound, incised, eye and adnexa, "L" (Class XXV, Inter. 186)	1	4	1	5					1		361
Wound, incised, face, "B" (Class XXV, Inter. 186)		1	1	1					1		11
Wound, incised, face, "G" (Class XXV, Inter. 186)		2		2							10
Wound, incised, face, "J" (Class XXV, Inter. 186)		1		1							0
Wound, incised, face, "L" (Class XXV, Inter. 186)		2		2							2
Wound, incised, finger, "H" (Class XXV, Inter. 186)		22	3	21					3	1	206
Wound, incised, finger, "L" (Class XXV, Inter. 186)	3	39	9	39	2		2		8		751
Wound, incised, foot, "G" (Class XXV, Inter. 186)		1		1							4
Wound, incised, foot, "H" (Class XXV, Inter. 186)		2	1	2					1		71
Wound, incised, foot, "I" (Class XXV, Inter. 186)		1		1							4
Wound, incised, foot, "J" (Class XXV, Inter. 186)		4		4							89
Wound, incised, foot, "L" (Class XXV, Inter. 186)		15	2	15					2		201
Wound, incised, forearm, "A" (Class XXV, Inter. 186)		1			1						3
Wound, incised, forearm, "F" (Class XXV, Inter. 186)		1		1							10
Wound, incised, forearm, "K" (Class XXV, Inter. 186)		1	1	1					1		69
Wound, incised, forearm, "L" (Class XXV, Inter. 186)	2	11	5	12					5	1	162
Wound, incised, hand, "G" (Class XXV, Inter. 186)		2		2							13
Wound, incised, hand, "H" (Class XXV, Inter. 186)		2		2							16
Wound, incised, hand, "L" (Class XXIV, Inter. 86)	2	32	3	33	1				2	1	281

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1920—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Wound, incised, head, "G" (Class XXV, Inter. 186)		7	1	7					1		16
Wound, incised, head, "H" (Class XXV, Inter. 186)		1		1							2
Wound, incised, head, "I" (Class XXV, Inter. 186)		2	1	2					1		66
Wound, incised, head, "L" (Class XXV, Inter. 186)		12	2	12	1				1		61
Wound, incised, knee, "G" (Class XXV, Inter. 186)		3	1	3					1		25
Wound, incised, knee, "L" (Class XXV, Inter. 186)		3	1	4							15
Wound, incised, leg, "G" (Class XXV, Inter. 186)		2	2		1				2	1	79
Wound, incised, leg, "H" (Class XXV, Inter. 186)		1	1	1					1		14
Wound, incised, leg, "J" (Class XXV, Inter. 186)		1	1	1					1		11
Wound, incised, leg, "L" (Class XXV, Inter. 186)		7	1	7					1		86
Wound, incised, mouth, "G" (Class XXV, Inter. 186)		1		1							5
Wound, incised, mouth, "J" (Class XXV, Inter. 186)		1		1							10
Wound, incised, mouth, "L" (Class XXV, Inter. 186)		3		3							2
Wound, incised, multiple, "B" (Class XXV, Inter. 186)		1			1						16
Wound, incised, multiple, "F" (Class XXV, Inter. 186)		1		1							1
Wound, incised, multiple, "L" (Class XXV, Inter. 186)		4	1	3	1				1		45
Wound, incised, neck, "A" (Class XXV, Inter. 186)		1	1		1				1		9
Wound, incised, neck, "B" (Class XXV, Inter. 186)		1	1	1					1		27
Wound, incised, neck, "L" (Class XXV, Inter. 186)		2		2							21
Wound, incised, nose, "L" (Class XXV, Inter. 186)		1		1							6
Wound, incised, shoulder, "B" (Class XXV, Inter. 186)		3	3	4					2		62
Wound, incised, shoulder, "L" (Class XXV, Inter. 186)		6	1	3					4		47
Wound, incised, thigh, "L" (Class XXV, Inter. 186)	1	6	2	7					2		71
Wound, incised, thorax, "A" (Class XXV, Inter. 186)		2	1	2					1		13
Wound, incised, thorax, "L" (Class XXV, Inter. 186)	1	3	3	6	1						117
Wound, incised, toe, "H" (Class XXV, Inter. 186)		1		1							31
Wound, incised, toe, "J" (Class XXV, Inter. 186)		1		1							4
Wound, incised, toe, "L" (Class XXV, Inter. 186)		2		1	1						17
Wound, incised, urethra, "L" (Class XXV, Inter. 186)	1				1						34
Wound, incised, wrist, "L" (Class XXV, Inter. 186)		7	1	6	1				1		69
Wound, lacerated, abdominal, "B" (Class XXV, Inter. 186)		1	1	1					1		26
Wound, lacerated, abdominal, "G" (Class XXV, Inter. 186)		1	2	2					1		15
Wound, lacerated, abdominal, "L" (Class XXV, Inter. 186)	1	1		2							79
Wound, lacerated, ankle, "E" (Class XXV, Inter. 186)		2		1						1	34
Wound, lacerated, ankle, "J" (Class XXV, Inter. 186)		1		1							2
Wound, lacerated, ankle, "K" (Class XXV, Inter. 186)	3		4	1				2		4	504
Wound, lacerated, ankle, "L" (Class XXV, Inter. 186)		4	1	4						1	108
Wound, lacerated, arm, "E" (Class XXV, Inter. 186)	2			1	1						229
Wound, lacerated, arm, "G" (Class XXV, Inter. 186)		2		2							12
Wound, lacerated, arm, "G-R" (Class XXV, Inter. 186)		1	1	1						1	4

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1920—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Wound, lacerated, arm, "H" (Class XXV, Inter. 186)	1	2	1	3						1	423
Wound, lacerated, arm, "K" (Class XXV, Inter. 186)	9		15	3	3		7		11		1,093
Wound, lacerated, arm, "L" (Class XXV, Inter. 186)	1	3	1	4					1		54
Wound, lacerated, axilla, "G" (Class XXV, Inter. 186)		1		1							17
Wound, lacerated, axilla, "L" (Class XXV, Inter. 186)		1		1							9
Wound, lacerated, back, "G" (Class XXV, Inter. 186)		1		1							7
Wound, lacerated, back, "K" (Class XXV, Inter. 186)			1	1							1
Wound, lacerated, back, "L" (Class XXV, Inter. 186)		1		1							0
Wound, lacerated, brain, "A" (Class XXV, Inter. 186)		3					3				0
Wound, lacerated, brain, "B" (Class XXV, Inter. 186)		1	1			1			1		5
Wound, lacerated, ear, "G" (Class XXV, Inter. 186)		2	1	2					1		30
Wound, lacerated, ear, "H" (Class XXV, Inter. 186)		2		2							13
Wound, lacerated, ear, "I" (Class XXV, Inter. 186)		1		1							5
Wound, lacerated, ear, "J" (Class XXV, Inter. 186)		1	1	1					1		6
Wound, lacerated, ear, "L" (Class XXV, Inter. 186)		5	1	4					1	1	113
Wound, lacerated, elbow, "G" (Class XXV, Inter. 186)		2	1	1					2		20
Wound, lacerated, elbow, "K" (Class XXV, Inter. 186)			2				1		1		0
Wound, lacerated, elbow, "L" (Class XXV, Inter. 186)		5	3	6					2		173
Wound, lacerated, eye and ad- nexa, "E" (Class XXV, Inter. 186)	2	2	3				2		4	1	121
Wound, lacerated, eye and ad- nexa, "F" (Class XXV, Inter. 186)		3	5	2	1				4	1	260
Wound, lacerated, eye and ad- nexa, "G" (Class XXV, Inter. 186)		3	2	3					2		48
Wound, lacerated, eye and ad- nexa, "H" (Class XXV, Inter. 186)		2	1	1					1	1	53
Wound, lacerated, eye and ad- nexa, "I" (Class XXV, Inter. 186)	1		1	1					1		20
Wound, lacerated, eye and ad- nexa, "J" (Class XXV, Inter. 186)		1	1	2							24
Wound, lacerated, eye and ad- nexa, "K" (Class XXV, Inter. 186)	1		5				2		4		306
Wound, lacerated, eye and ad- nexa, "L" (Class XXV, Inter. 186)	2	17	11	15	1		6		8		492
Wound, lacerated, face, "E" (Class XXV, Inter. 186)		1	1	1					1		22
Wound, lacerated, face, "F" (Class XXV, Inter. 186)		3		3							23
Wound, lacerated, face, "G" (Class XXV, Inter. 186)	1	9	3	9					3	1	121
Wound, lacerated, face, "G-R" (Class XXV, Inter. 186)		1	1	1					1		5
Wound, lacerated, face, "H" (Class XXV, Inter. 186)		4	1	4					1		47
Wound, lacerated, face, "I" (Class XXV, Inter. 186)		2		2							3
Wound, lacerated, face, "J" (Class XXV, Inter. 186)		5	2	6					1		15
Wound, lacerated, face, "K" (Class XXV, Inter. 186)		1	4	1					4		44
Wound, lacerated, face, "L" (Class XXV, Inter. 186)		29	9	27	1				8	2	204

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1920—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Wound, lacerated, finger, "E" (Class XXV, Inter. 186).....		8	7	8	1		1		4	1	173
Wound, lacerated, finger, "F" (Class XXV, Inter. 186).....		1	1		1				1		27
Wound, lacerated, finger, "G" (Class XXV, Inter. 186).....		6	1	6					1		116
Wound, lacerated, finger, "H" (Class XXV, Inter. 186).....	4	127	33	124	6				28	6	2,889
Wound, lacerated, finger, "H-R" (Class XXV, Inter. 186).....		2	1	2					1		44
Wound, lacerated, finger, "I" (Class XXV, Inter. 186).....	2	54	6	57					5		783
Wound, lacerated, finger, "J" (Class XXV, Inter. 186).....		2	1	1	1				1		23
Wound, lacerated, finger, "L" (Class XXV, Inter. 186).....	6	79	12	79	3		1	1	8	5	1,385
Wound, lacerated, foot, "E" (Class XXV, Inter. 186).....		5	5	2			1		5	2	319
Wound, lacerated, foot, "G" (Class XXV, Inter. 186).....		7		7							73
Wound, lacerated, foot, "H" (Class XXV, Inter. 186).....		6		6							176
Wound, lacerated, foot, "I" (Class XXV, Inter. 186).....		8	4	9	1				2		217
Wound, lacerated, foot, "J" (Class XXV, Inter. 186).....	1	9	3	11					2		161
Wound, lacerated, foot, "K" (Class XXV, Inter. 186).....	3		13	3			3	1	9		680
Wound, lacerated, foot, "L" (Class XXV, Inter. 186).....	1	37	7	36	1				7	2	573
Wound, lacerated, forearm, "E" (Class XXV, Inter. 186).....		2	1	1					1	1	4
Wound, lacerated, forearm, "F" (Class XXV, Inter. 186).....		1		1							9
Wound, lacerated, forearm, "G" (Class XXV, Inter. 186).....		4	1	3			1		1		117
Wound, lacerated, forearm, "H" (Class XXV, Inter. 186).....		5	1	5					1		111
Wound, lacerated, forearm, "I" (Class XXV, Inter. 186).....		1		1							3
Wound, lacerated, forearm, "K" (Class XXV, Inter. 186).....	1		3		2		1		1		215
Wound, lacerated, forearm, "L" (Class XXV, Inter. 186).....	1	9	6	8	1				5	2	332
Wound, lacerated, hand, "E" (Class XXV, Inter. 186).....	1	3	4	2					6		193
Wound, lacerated, hand, "F" (Class XXV, Inter. 186).....		2	5	2			1		4		160
Wound, lacerated, hand, "G" (Class XXV, Inter. 186).....		10	4	9			1		4		355
Wound, lacerated, hand, "H" (Class XXV, Inter. 186).....	2	34	10	27	4		2		11	2	896
Wound, lacerated, hand, "I" (Class XXV, Inter. 186).....	1	15	1	15					2		313
Wound, lacerated, hand, "J" (Class XXV, Inter. 186).....		4	1	4					1		43
Wound, lacerated, hand, "K" (Class XXV, Inter. 186).....			1				1				30
Wound, lacerated, hand, "L" (Class XXV, Inter. 186).....	2	41	13	42	1				11	2	707
Wound, lacerated, head, "B" (Class XXV, Inter. 186).....		1		1							6
Wound, lacerated, head, "E" (Class XXV, Inter. 186).....		3		3							37
Wound, lacerated, head, "F" (Class XXV, Inter. 186).....		1		1							8
Wound, lacerated, head, "G" (Class XXV, Inter. 186).....	1	51	22	53	6				15		441
Wound, lacerated, head, "H" (Class XXV, Inter. 186).....		9	3	7	1				2	1	36
Wound, lacerated, head, "H-R" (Class XXV, Inter. 186).....		2	1	1					1	1	9
Wound, lacerated, head, "I" (Class XXV, Inter. 186).....		9	4	8					4	1	80
Wound, lacerated, head, "J" (Class XXV, Inter. 186).....		4	2	5					1		179
Wound, lacerated, head, "K" (Class XXV, Inter. 186).....	1		1		1				1		169

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1920—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Wound, lacerated, head, "L" (Class XXV, Inter. 186).....		99	25	93	6				24	1	637
Wound, lacerated, hip, "K" (Class XXV, Inter. 186).....	2		2	1	1		1		1		328
Wound, lacerated, jaw, "G" (Class XXV, Inter. 186).....		2		2							25
Wound, lacerated, jaw, "L" (Class XXV, Inter. 186).....	1	4	7	5	1				6		208
Wound, lacerated, knee, "E" (Class XXV, Inter. 186).....	1	2	2	3					2		57
Wound, lacerated, knee, "G" (Class XXV, Inter. 186).....	1	13	4	11	1				4	2	146
Wound, lacerated, knee, "H" (Class XXV, Inter. 186).....		2		1						1	28
Wound, lacerated, knee, "J" (Class XXV, Inter. 186).....		3	3	2			1		3		110
Wound, lacerated, knee, "K" (Class XXV, Inter. 186).....	3			1	2						88
Wound, lacerated, knee, "L" (Class XXV, Inter. 186).....	1	3	1	4					1		56
Wound, lacerated, leg, "E" (Class XXV, Inter. 186).....		1	2	2					1		47
Wound, lacerated, leg, "G" (Class XXV, Inter. 186).....	2	22	9	24	3				6		448
Wound, lacerated, leg, "H" (Class XXV, Inter. 186).....		5	12	5	3				8	1	461
Wound, lacerated, leg, "H-R" (Class XXV, Inter. 186).....		1		1							12
Wound, lacerated, leg, "L" (Class XXV, Inter. 186).....		4	4	3	1				4		208
Wound, lacerated, leg, "K" (Class XXV, Inter. 186).....	9	1	24	3	3		9		17	2	1,811
Wound, lacerated, leg, "L" (Class XXV, Inter. 186).....		9	2	9						2	268
Wound, lacerated, lower extremity, "F" (Class XXV, Inter. 186).....		1	2						2	1	232
Wound, lacerated, mouth, "G" (Class XXV, Inter. 186).....		1	1	1					1		13
Wound, lacerated, mouth, "H" (Class XXV, Inter. 186).....		1		1							1
Wound, lacerated, mouth, "L" (Class XXV, Inter. 186).....		3		3							10
Wound, lacerated, mouth, "L" (Class XXV, Inter. 186).....		19	9	21	1				6		132
Wound, lacerated, mouth, "L-R" (Class XXV, Inter. 186).....		1		1							4
Wound, lacerated, multiple, "B" (Class XXV, Inter. 186).....		1	2	1	1				1		30
Wound, lacerated, multiple, "E" (Class XXV, Inter. 186).....	1	2	5	3	1		1		3		406
Wound, lacerated, multiple, "F" (Class XXV, Inter. 186).....	1	4	3	2	2		1		3		203
Wound, lacerated, multiple, "G" (Class XXV, Inter. 186).....		2		1					1		13
Wound, lacerated, multiple, "G-R" (Class XXV, Inter. 186).....			1				1				0
Wound, lacerated, multiple, "H" (Class XXV, Inter. 186).....		4	2	3	1	1			1		57
Wound, lacerated, multiple, "I" (Class XXV, Inter. 186).....		1	1	1			1				113
Wound, lacerated, multiple, "K" (Class XXV, Inter. 186).....		8	13	1	2		8		10		975
Wound, lacerated, multiple, "L" (Class XXV, Inter. 186).....		9	2	9	1				1		88
Wound, lacerated, neck, "A" (Class XXV, Inter. 186).....		1	1		1				1		10
Wound, lacerated, neck, "L" (Class XXV, Inter. 186).....		1					1				0
Wound, lacerated, nose, "G" (Class XXV, Inter. 186).....		1		1							4
Wound, lacerated, nose, "H" (Class XXV, Inter. 186).....		3	2	2	1				1	1	37
Wound, lacerated, nose, "L" (Class XXV, Inter. 186).....		1		1							0
Wound, lacerated, pelvic, "H" (Class XXV, Inter. 186).....		1		1							23
Wound, lacerated, penis "L" (Class XXV, Inter. 186).....		1	1	1					1		9

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1920—Contd.

Diagnoses	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont. Days.
<b>INJURIES—Continued.</b>										
Wound, lacerated, scrotum, -F-										
Class XIV, Inter 13	1	1			1			1		4
Wound, lacerated, scrotum, -G-										
Class XIV, Inter 13	1				1					13
Wound, lacerated, shoulder, -F-										
Class XIV, Inter 13	1		1	1				1		39
Wound, lacerated, shoulder, -F-										
Class XIV, Inter 13	1			1						1
Wound, lacerated, shoulder, -G-										
Class XIV, Inter 13	1			1						1
Wound, lacerated, shoulder, -K-										
Class XIV, Inter 13	3		3	1	2		2		1	182
Wound, lacerated, thigh, -B-										
Class XIV, Inter 13	1	1	1					1		3
Wound, lacerated, thigh, -F-										
Class XIV, Inter 13	1	4	4	5				2	2	27
Wound, lacerated, thigh, -G-										
Class XIV, Inter 13	3	2	3					2		3
Wound, lacerated, thigh, -H-										
Class XIV, Inter 13	1	1		1					1	70
Wound, lacerated, thigh, -K-										
Class XIV, Inter 13	5		21	2	5		12	1	13	1,105
Wound, lacerated, thigh, -L-										
Class XIV, Inter 13	1	7	3	8				3		104
Wound, lacerated, thigh, -F-										
Class XIV, Inter 13	1	1				1			1	3
Wound, lacerated, throat, -K-										
Class XIV, Inter 13			3		1				1	29
Wound, lacerated, throat, -L-										
Class XIV, Inter 13	1	1			1				1	9
Wound, lacerated, toe, -F-										
Class XIV, Inter 13	1	3	5	6				3		265
Wound, lacerated, toe, -G-										
Class XIV, Inter 13	5		4						1	23
Wound, lacerated, toe, -H-										
Class XIV, Inter 13	2	1	1					2		13
Wound, lacerated, toe, -I-										
Class XIV, Inter 13	9		6	1				1		89
Wound, lacerated, toe, -J-										
Class XIV, Inter 13	3		3							27
Wound, lacerated, toe, -L-										
Class XIV, Inter 13	1	5		9						204
Wound, lacerated, thumb, -F-										
Class XIV, Inter 13	4	1	4					1		25
Wound, lacerated, thumb, -L-										
Class XIV, Inter 13	1		1							4
Wound, lacerated, wrist, -F-										
Class XIV, Inter 13	1		1							21
Wound, lacerated, wrist, -G-										
Class XIV, Inter 13	5	2	5	1				1		61
Wound, lacerated, wrist, -H-										
Class XIV, Inter 13	3	1	3					1		6
Wound, lacerated, wrist, -I-										
Class XIV, Inter 13	1		1							13
Wound, lacerated, wrist, -L-										
Class XIV, Inter 13	9	2	9					2		214
Wound, lacerated, forearm, -A-										
Class XXV, Inter 13	1	1	1					1		21
Wound, lacerated, forearm, -B-										
Class XXV, Inter 13	4	3	2		3			2		16
Wound, lacerated, forearm, -C-										
Class XXV, Inter 13	1	1	1					1		29
Wound, lacerated, forearm, -K-										
Class XXV, Inter 13	1		1				1		1	233
Wound, lacerated, forearm, -L-										
Class XXV, Inter 13	4	2	2		1			1	2	65
Wound, lacerated, forearm, -E-										
Class XXV, Inter 13	1	2	4	3				1	2	373
Wound, lacerated, forearm, -K-										
Class XXV, Inter 13			1	1						95
Wound, lacerated, arm, -E-										
Class XXV, Inter 13	3	2	1			1		2		116
Wound, lacerated, arm, -F-										
Class XXV, Inter 13	1	5	1					4	1	93
Wound, lacerated, arm, -K-										
Class XXV, Inter 13	4		3				1		6	473
Wound, lacerated, arm, -L-										
Class XXV, Inter 13	1	1	1	1				1	1	7



TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1920—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Wound, punctured, axilla, "G" (Class XXV, Inter. 186)		1		1							15
Wound, punctured, back, "B" (Class XXV, Inter. 186)		1		1							4
Wound, punctured, back, "G" (Class XXV, Inter. 186)		1		1							3
Wound, punctured, brain, "A" (Class XXV, Inter. 186)		6	3	1		5			3		47
Wound, punctured, brain, "E" (Class XXV, Inter. 186)		1				1					0
Wound, punctured, elbow, "G" (Class XXV, Inter. 186)		1		1							4
Wound, punctured, eye and adnexa, "E" (Class XXV, Inter. 186)			1				1				0
Wound, punctured, eye and adnexa, "F" (Class XXV, Inter. 186)		1	2				1		2		46
Wound, punctured, eye and adnexa, "H" (Class XXV, Inter. 186)		4	1	3					2		18
Wound, punctured, eye and adnexa, "J" (Class XXV, Inter. 186)	1						1				111
Wound, punctured, eye and adnexa, "K" (Class XXV, Inter. 186)	1					1					20
Wound, punctured, eye and adnexa, "L" (Class XXV, Inter. 186)	1	6	6	5	1		3		3	1	398
Wound, punctured, face, "E" (Class XXV, Inter. 186)	1	1	1		1	1			1		70
Wound, punctured, face, "F" (Class XXV, Inter. 186)		1		1							3
Wound, punctured, face, "K" (Class XXV, Inter. 186)			1				1				53
Wound, punctured, finger, "E" (Class XXV, Inter. 186)	1	1	1	2					1		42
Wound, punctured, finger, "F" (Class XXV, Inter. 186)		1	1	1					1		14
Wound, punctured, finger, "L" (Class XXV, Inter. 186)		7	2	6					2	1	97
Wound, punctured, foot, "E" (Class XXV, Inter. 186)	3	9	5	11			1		4	1	585
Wound, punctured, foot, "G" (Class XXV, Inter. 186)		4	2	3	1				2		22
Wound, punctured, foot, "J" (Class XXV, Inter. 186)		6		5	1						9
Wound, punctured, foot, "L" (Class XXV, Inter. 186)	1	93	21	98	1				16		640
Wound, punctured, forearm, "B" (Class XXV, Inter. 186)		1	4	2					3		22
Wound, punctured, forearm, "E" (Class XXV, Inter. 186)		2	4	3				1	2		90
Wound, punctured, forearm, "K" (Class XXV, Inter. 186)			2	1			1				137
Wound, punctured, forearm, "L" (Class XXV, Inter. 186)		2		2							19
Wound, punctured, hand, "E" (Class XXV, Inter. 186)		10	11	15			1	1	10		636
Wound, punctured, hand, "G" (Class XXV, Inter. 186)		2		2							5
Wound, punctured, hand, "L" (Class XXV, Inter. 186)		8	1	7					1	1	114
Wound, punctured, head, "A" (Class XXV, Inter. 186)		7	1				7		1		0
Wound, punctured, head, "B" (Class XXV, Inter. 186)		1	1						1	1	36
Wound, punctured, head, "E" (Class XXV, Inter. 186)		1					1				0
Wound, punctured, head, "L" (Class XXV, Inter. 186)		1					1				0
Wound, punctured, heart, "A" (Class XXV, Inter. 186)		4					4				2
Wound, punctured, heart, "B" (Class XXV, Inter. 186)		2					2				0
Wound, punctured, jaw, "G" (Class XXV, Inter. 186)		1		1							25

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1920—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Wound, punctured, jaw, "L" (Class XXV, Inter. 186).....		1		1							9
Wound, punctured, knee, "E" (Class XXV, Inter. 186).....	1	4	1	4					2		129
Wound, punctured, knee, "F" (Class XXV, Inter. 186).....			2				1		1		124
Wound, punctured, knee, "G" (Class XXV, Inter. 186).....		2	1	2					1		25
Wound, punctured, knee, "K" (Class XXV, Inter. 186).....			3	1	1				1		58
Wound, punctured, knee, "L" (Class XXV, Inter. 186).....		3	3	4					2		122
Wound, punctured, leg, "B" (Class XXV, Inter. 186).....	1	1							1	1	24
Wound, punctured, leg, "E" (Class XXV, Inter. 186).....	3	18	8	15	2				10	2	719
Wound, punctured, leg, "F" (Class XXV, Inter. 186).....	1		1								3
Wound, punctured, leg, "G" (Class XXV, Inter. 186).....		2		2							13
Wound, punctured, leg, "K" (Class XXV, Inter. 186).....	3		12	5	1		1		8		394
Wound, punctured, leg, "L" (Class XXV, Inter. 186).....	1	3	3	2	1				3	1	38
Wound, punctured, lower ex- tremity, "E" (Class XXV, Inter. 186).....		1	1						1	1	3
Wound, punctured, lung, "E" (Class XXV, Inter. 186).....		2				2					0
Wound, punctured, lung, "L" (Class XXV, Inter. 186).....	1					1					3
Wound, punctured, mouth, "L" (Class XXV, Inter. 186).....	1		1								3
Wound, punctured, multiple, "E" (Class XXV, Inter. 186).....	3	7	5	1					4		185
Wound, punctured, multiple, "F" (Class XXV, Inter. 186).....	1					1					9
Wound, punctured, multiple, "K" (Class XXV, Inter. 186).....	5	1	5		1	1	3		6		435
Wound, punctured, neck, "B" (Class XXV, Inter. 186).....	1					1					2
Wound, punctured, neck, "K" (Class XXV, Inter. 186).....			1				1				9
Wound, punctured, neck, "L" (Class XXV, Inter. 186).....	1	1	1						1		8
Wound, punctured, pelvic, "K" (Class XXV, Inter. 186).....	1	1				1			1		0
Wound, punctured, pelvic, "L" (Class XXV, Inter. 186).....	1		1								16
Wound, punctured, shoulder, "A" (Class XXV, Inter. 186).....	1	1	1						1		65
Wound, punctured, shoulder, "E" (Class XXV, Inter. 186).....			3	4			1		1		39
Wound, punctured, shoulder, "G" (Class XXV, Inter. 186).....	2			2							7
Wound, punctured, shoulder, "K" (Class XXV, Inter. 186).....			3				1		2		43
Wound, punctured, shoulder, "L" (Class XXV, Inter. 186).....	1	2	3								41
Wound, punctured, thigh, "E" (Class XXV, Inter. 186).....	12	7	12						6	1	321
Wound, punctured, thigh, "G" (Class XXV, Inter. 186).....	1	1	2								16
Wound, punctured, thigh, "K" (Class XXV, Inter. 186).....	4	1	6	2			4		5		378
Wound, punctured, thigh, "L" (Class XXV, Inter. 186).....		6	3	5	1				1	2	54
Wound, punctured, thorax, "A" (Class XXV, Inter. 186).....		4				4					1
Wound, punctured, thorax, "B" (Class XXV, Inter. 186).....		6	2	2		3			3		144
Wound, punctured, thorax, "E" (Class XXV, Inter. 186).....		6	2	2		3			2	1	129
Wound, punctured, thorax, "F" (Class XXV, Inter. 186).....	1		1								12
Wound, punctured, thorax, "K" (Class XXV, Inter. 186).....	1		1				1		1		79
Wound, punctured, thorax, "L" (Class XXV, Inter. 186).....		1	2	1	1				1		11

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1920—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>INJURIES—Continued.</b>											
Wound, punctured, toe, "E" (Class XXV, Inter. 186).....	1	1			1					1	15
Wound, punctured, toe, "J" (Class XXV, Inter. 186).....		1		1							5
Wound, punctured, toe, "L" (Class XXV, Inter. 186).....		4		4							28
Wound, punctured, unqualified, "E" (Class XXV, Inter. 186).....		1				1					0
Wound, punctured, upper ex- tremity, "K" (Class XXV, Inter. 186).....			2				1		1		58
Wound, punctured, wrist, "L" (Class XXV, Inter. 186).....		1	1	2							9
<b>POISONS.</b>											
Cretaxism, "L" (Class XXVI, Inter. 164).....		2	1	3							19
Insect sting, "L" (Class XXVI, Inter. 165A).....		9	5	9	2				3		38
Poison, cocaine, anesthesia, "L" (Class XXVI, Inter. 165B).....		1		1							8
Poison, ether, anesthesia, "L" (Class XXVI, Inter. 168B).....		2				2					0
Poison, acid, hydrochloric, acute, "L" (Class XXVI, Inter. 165B).....		3		3							15
Poison, acid, nitric, acute, "A" (Class XXVI, Inter. 165B).....		1	2		1	1			1		1
Poison, alcohol, denatured, acute, "A" (Class XXVI, Inter. 56B).....		1		1							2
Poison, alcohol, ethyl, acute, "L" (Class XXVI, Inter. 56B).....	2	264	125	257	42	1		2	88	1	933
Poison, alcohol, ethyl, chronic, "L" (Class XXVI, Inter. 56B).....		12	22	17	6	3			8		213
Poison, alcohol, methyl, acute, "L" (Class XXVI, Inter. 165B).....		7	6	5	2				5	1	168
Poison, anilin dyes, acute, "L" (Class XXVI, Inter. 165B).....		1	2	1	1				1		31
Poison, arsenic, acute, "L" (Class XXVI, Inter. 165B).....		3		3							22
Poison, arsenic, acute (antisyph- ilitic treatment) "L" (Class XXVI, Inter. 165B).....	2	6	2	6	1	1			2		47
Poison, arsenic, chronic (anti- syphilitic treatment), "L" (Class XXVI, Inter. 165B).....		1	1	2							18
Poison, carbon dioxide, acute, "L" (Class XXVI, Inter. 168B).....		1			1						31
Poison, carbon monoxide, acute, "L" (Class XXVI, Inter. 168B).....		7	6	6	2	1			3	1	133
Poison, chloral, acute, "L" (Class XXVI, Inter. 165B).....		2	4	2	2				2		31
Poison, chloroform, acute, "A" (Class XXVI, Inter. 165B).....		1	2	1	1				1		8
Poison, cocaine, acute, "L" (Class XXVI, Inter. 165B).....		3	1	1				1	2		17
Poison, cocaine, chronic, "L" (Class XXVI, Inter. 59).....		9	12	4	3		3		9	2	236
Poison, ether, chronic, "L" (Class XXVI, Inter. 59).....		1		1							1
Poison, fish venom, acute, "J" (Class XXVI, Inter. 165A).....		3	2	3					2		54
Poison, fish venom, acute, "L" (Class XXVI, Inter. 165A).....		3		3							24
Poison, food, animal, acute, "L" (Class XXVI, Inter. 164).....	1	15	4	11	2	1			6		59
Poison, food, fish, acute, "L" (Class XXVI, Inter. 164).....		4	2	6							20
Poison, food, vegetable, acute, "L" (Class XXVI, Inter. 164).....		15	12	18	5			1	3		118
Poison, formaldehyde, acute, "L" (Class XXVI, Inter. 165B).....		2		2							18
Poison, gasoline, inhaled, acute "L" (Class XXVI, Inter. 168B).....		10	5	9	1	1			4		38
Poison, heroin, acute, "L" (Class XXVI, Inter. 165B).....		1				1					1
Poison, heroin, chronic, "L" (Class XXVI, Inter. 59).....		10	8	8	1		2		6	1	136

TABLE 1.—Detailed statement of diseases and injuries for the calendar year 1920—Contd.

Diagnoses.	Rem.	A.	RA.	D.	C.	DD.	IS.	R.	T.	Cont.	Days.
<b>POISON—Continued.</b>											
Poison, illuminating gas, acute, "L" (Class XXVI, Inter. 165B).		9	2	4		5			2		19
Poison, iodine, acute, "A" (Class XXVI, Inter. 165B).		3	2	4					1		24
Poison, lead, acute, "L" (Class XXVI, Inter. 165B).		4	5	3	3				3		95
Poison, lead, chronic, "L" (Class XXVI, Inter. 57B).		1		1							15
Poison, mercuric chloride, acute, "A" (Class XXVI, Inter. 165B).		7	4	3	2	2			4		63
Poison, mercuric chloride, "L" (Class XXVI, Inter. 165B).	1	5	2	5	1				2		26
Poison, mercury salts, other, acute, "L" (Class XXVI, Inter. 165B).		1		1							6
Poison, mercury salts (antisyphilitic treatment) "L" (Class XXVI, Inter. 165B).	1	1		2							51
Poison, morphine, acute, "L" (Class XXVI, Inter. 165B).	2	4		5		1					29
Poison, morphine, chronic, "L" (Class XXVI, Inter. 59).	2	15	13	7	1		9		11	2	336
Poison, opium, acute, "L" (Class XXVI, Inter. 165B).		3	2	2	2				1		22
Poison, opium, chronic, "L" (Class XXVI, Inter. 59).		3	1	1			1		2		53
Poison, phenol, acute, "A" (Class XXVI, Inter. 165B).		1	2		1				2		12
Poison, potassium cyanide, acute, "L" (Class XXVI, Inter. 165B).		1	2	1	1				1		24
Poison, picramine, acute, "L" (Class XXVI, Inter. 164).		55	20	54					21		237
Poison, quinine, acute, "L" (Class XXVI, Inter. 165B).		1		1							2
Poison, snake venom, acute, "L" (Class XXVI, Inter. 165A).		1		1							3
Poison, strychnine, acute, "A" (Class XXVI, Inter. 165B).		2	1	2					1		4
Poison, strychnine, acute, "L" (Class XXVI, Inter. 165B).		1	1	1					1		10
Poison, tobacco, chronic, "L" (Class XXVI, Inter. 165B).		1		1							5
Poison, turpentine, acute, "L" (Class XXVI, Inter. 165B).		2		2							2
Poison, turpentine, inhaled, acute, "L" (Class XXVI, Inter. 165B).		2		2							4
Poison, unqualified, acute, "L" (Class XXVI, Inter. 165B).		14	8	12	3	2			5		73
Poison, unqualified, chronic, "L" (Class XXVI, Inter. 165B).		1	1	1					1		2
Poison, warfare gas, chronic, "K" (Class XXVI, Inter. 168B).	6		23	1	5		6		13	4	1,074
Poison, zinc, acute, "L" (Class XXVI, Inter. 165B).		1		1							5

## SUMMARY.

Summary and comparative rates with previous years.	Entire service, calendar year 1920.	Average, entire service, 10 years, 1910-1919.
Average complement.....	140,773	150,066
Number of admissions.....	109,717	100,257
Rate per 1,000 of complement.....	779.39	639.17
Deaths.....	1,000	1,411
Rate per 1,000 of complement.....	7.10	5.92
Invalided from service.....	5,259	4,320
Rate per 1,000 of complement.....	37.33	28.80
Total number of sick days.....	2,112,991	1,745,788
Rate per 1,000 of complement.....	15,009.33	11,614.25
Total number of sick days in naval hospitals.....	1,594,549	
Rate per 1,000 of complement.....	11,327.09	

Figures from previous years for the preparation of the summary are as follows:

Year.	Average complement.	Admissions.	Rate.	Deaths.	Rate.	Invalided from service.	Rate.	Sick days.
1910.....	58,691	38,885	662.53	294	5.00	1,418	24.15	556,084
1911.....	61,399	38,650	626.48	253	4.12	1,675	27.28	605,083
1912.....	61,897	35,967	581.07	253	4.08	1,469	23.73	584,889
1913.....	65,926	33,703	511.22	252	3.82	1,319	20.00	662,090
1914.....	67,141	40,699	606.17	281	4.18	1,426	21.23	729,305
1915.....	68,075	44,743	657.26	305	4.47	1,272	18.68	776,203
1916.....	69,294	45,516	656.85	335	4.83	1,156	16.68	808,951
1917.....	245,580	131,357	534.88	1,072	4.36	5,063	20.61	1,954,278
1918.....	503,792	391,078	776.27	9,307	18.47	11,990	23.79	6,327,821
1919.....	298,774	201,978	676.02	1,762	5.90	15,517	51.94	4,423,204



*groups of the personnel for the calendar year 1920, by classified admissions and and invalid rates, suicides and suicide rates, and sick days.*

Miscellaneous force.				Seaman branch.			Total for all occupations.				
Marines.	Musi- cians.	Prison- ers.	Nurses (female).	Appren- tices.	Ord- nance.	All others.	Number.	Deaths	Invali- dized from service.	Sick days.	
16,685	2,106	1,053	535	14,750	3,422	33,011	140,773				
7			2	1		5	34	5	3	1,807	
0.41			3.53	0.06		0.16	0.24	0.03	0.02	12.82	
96	10	3	2	405	10	125	1,073	23	580	34,700	
6.74	4.74	2.84	3.53	27.45	2.92	3.78	7.61	0.16	4.11	274.77	
1,300	107	90	49	1,242	156	1,736	9,117	37	97	164,746	
78.39	60.80	85.46	86.72	84.19	48.60	52.58	64.73	0.26	0.68	1,169.69	
15			1	32		18	102	1	60	5,606	
0.89			1.76	2.16		0.64	9.72	0.007	0.42	40.22	
222	10	13	3	553	15	393	2,043	2	325	58,240	
13.29	4.74	12.54	6.30	37.48	4.38	11.90	14.60	0.014	2.30	418.50	
244	13	7	1	196	37	220	1,442		239	33,348	
14.85	6.17	6.64	1.76	12.60	10.81	6.72	10.23		1.67	236.77	
351	28	45	6	499	57	575	2,790	14	199	71,493	
21.02	13.29	42.73	10.61	33.82	16.65	17.41	19.80	0.09	1.41	607.60	
1,466	122	52	76	5,537	187	2,937	17,824	436	9	309,621	
87.79	57.92	49.38	134.51	275.35	64.64	88.96	126.55	3.09	0.08	2,198.30	
8	1			3	1	12	66	7	3	3,776	
0.47	0.47			0.20	0.29	0.36	0.46	0.04	0.02	26.80	
2,116	34	12	5	208	38	424	3,771	4	5	44,897	
123.72	16.14	11.39	8.84	14.10	11.10	12.84	26.77	0.02	0.03	318.76	
93	3	9	8	87	13	109	637	84	643	168,345	
6.68	1.42	8.54	14.16	6.89	3.79	5.30	4.62	0.69	4.56	1,186.24	
2,075	159	78		1,139	340	5,496	17,763	11	160	239,392	
124.27	76.49	74.07		77.21	111.04	166.47	136.11	0.07	1.13	1,669.04	
754	41	38	11	858	70	1,553	5,862	35	22	97,792	
45.16	20.83	36.08	19.45	68.16	20.45	47.04	41.62	0.24	0.15	694.32	
225	6	11		100	12	240	1,004	1	6	27,898	
13.63	2.84	10.44		6.77	3.60	7.26	7.12	0.007	0.04	198.67	
135	5	32	1	298	7	140	976	5	760	67,340	
8.08	2.37	30.26	1.76	20.20	2.04	4.24	6.92	0.03	5.39	478.39	
295	10	11	7	465	21	294	1,934	1	783	75,883	
17.72	4.74	10.44	12.58	31.52	6.13	8.90	13.73	0.007	6.55	538.76	
181	6	10	11	221	19	167	1,189	28	485	51,024	
10.84	2.84	9.49	19.46	14.08	6.55	6.05	8.44	0.19	3.44	563.27	
2,396	231	222	93	5,685	293	5,338	24,733	1	246	282,213	
143.49	109.68	210.62	164.60	385.38	85.62	161.68	176.60	0.007	1.74	2,063.71	
298	20	18	3	215	27	304	1,516		47	31,538	
17.84	9.49	17.09	6.30	14.57	7.88	9.29	10.76		0.33	233.91	
95	13	16		206	14	165	938		98	37,222	
6.68	6.17	15.19		13.96	4.09	4.99	6.65		0.69	264.27	
357	25	18	12	623	62	789	3,552	1	238	71,582	
21.38	11.87	17.09	21.23	42.23	18.11	23.89	25.21	0.007	1.68	608.23	
247	22	42		900	20	464	2,537		3	33,455	
14.79	10.44	39.88		61.01	6.84	14.05	18.01		0.02	237.53	
19	5		2	28	6	39	192	17	11	7,962	
1.13	2.37		3.53	1.89	1.76	1.18	1.38	0.12	0.07	64.40	
			7				7			172	
			12.38				0.04			1.22	

TABLE 2.—Table showing distribution of diseases and injuries among occupational admission rates, deaths and death rates, invalidated from service

Class No.	Class.	Officers.		Artificers.				Miscellaneous force.		
		Navy and Marine.	Midshipmen.	Electricians.	Engine room.	Fire room.	All others.	Clerical.	Culinary.	Hospital.
25	Wounds and other injuries.....	352	241	209	510	1,395	247	137	459	252
	Rate per 1,000.....	26.53	119.96	47.24	72.78	70.02	70.76	31.82	40.79	72.01
26	Poisons.....	22	1	12	22	75	21	13	26	27
	Rate per 1,000.....	1.66	0.60	2.71	3.13	3.76	6.01	3.01	2.31	7.71
27	Totals for all classes.....	4,240	2,350	2,929	4,264	17,611	2,021	2,239	7,257	4,810
	Rate per 1,000.....	319.61	1,169.73	662.04	608.61	884.07	578.91	620.07	645.00	1,374.24
28	Deaths.....	78	7	25	45	142	14	17	70	35
	Rate per 1,000.....	5.87	3.48	5.66	6.42	7.12	4.01	3.84	6.22	10.00
29	Suicides.....	9			2	6		1	1	
	Rate per 1,000.....	0.67			0.28	0.30		0.23	0.08	
30	Invalided from service.....	101		82	180	904	78	61	300	259
	Rate per 1,000.....	7.61		20.79	22.83	46.38	22.34	14.16	26.66	74.01
31	Total sick days.....	141,005	22,703	51,750	87,655	317,246	41,503	28,554	162,240	85,995
		10,628.96	11,300.64	11,697.06	12,509.24	16,985.74	11,588.63	8,265.32	14,419.89	25,406.50



groups of the personnel for the calendar year 1920, by classified admissions and invalided rates, suicides and suicide rates, and sick days—Continued.

Miscellaneous force.				Seaman branch.			Total for all occupations.			
Marines.	Musicians.	Prisoners.	Nurses (female).	Apprentices.	Ordnance.	All others.	Number.	Deaths.	Invalided from service.	Sick days.
999	50	59	19	841	177	2,129	8,076	235	219	135,553
59.83	23.74	56.08	33.62	57.01	51.72	64.48	67.33	1.88	1.53	1,317.42
128	4	2	2	75	8	101	539	22	21	4,676
7.66	1.89	1.89	3.53	8.08	2.33	5.06	3.82	0.15	0.14	33.19
14,139	928	788	321	20,407	1,640	23,773	109,717	1,000	5,259	2,113,991
846.78	440.64	748.33	668.14	1,383.59	479.24	720.08	778.99	7.10	37.33	15,009.33
162	7	3	5	205	12	173	1,000	.....	.....	.....
9.70	3.79	2.84	8.84	13.89	3.50	8.24	7.10	.....	.....	.....
7	.....	.....	.....	2	.....	3	31	.....	.....	.....
0.41	.....	.....	.....	0.13	.....	0.09	0.22	.....	.....	.....
682	22	22	10	1,797	30	741	5,259	.....	.....	.....
40.84	10.44	20.89	17.69	121.81	8.76	22.44	37.33	.....	.....	.....
287,201	15,136	19,406	9,536	401,110	35,434	394,537	2,113,991	.....	.....	.....
17,200.40	7,187.02	18,480.08	16,877.80	87,191.24	10,380.36	11,960.62	15,609.33	.....	.....	.....

## DEATHS.

TABLE 3.—Casualties in the Navy and Marine Corps during the calendar year 1920.

Cause.		Num- ber.	Navy.		Marine Corps.	
Primary.	Secondary.		Off- cers.	Men.	Off- cers.	Men.
DISEASES.						
Abscess about rectum	Septicemia	1		1		
Abscess of brain		7	1	6		
Abscess of kidney		1				1
Abscess of kidney, perinephritic		1		1		
Abscess, unqualified		2	1	1		
Do.	Pneumonia, broncho.	2		2		
Do.	Septicemia	3		3		
Anemia, pernicious		2		2		
Anemia, splenic		1		1		
Angina pectoris		2	1	1		
Appendicitis, acute		10	2	3		5
Do.	Obstruction, acute intestinal	1		1		
Do.	Peritonitis, acute, general	2		2		
Do.	Pneumonia, broncho.	1		1		
Do.	Septicemia	1		1		
Arterial sclerosis, general		1		1		
Asthma		1		1		
Autointoxication, intestinal		1		1		1
Carcinoma		6	1	3		2
Do.	Cholecystitis, chronic	1		1		
Cellulitis	Septicemia	4		3		1
Cerebrospinal fever		7		7		
Do.	Pericarditis	1		1		
Cholecystitis, acute		2		2		
Cholecystitis, chronic		1		1		
Chorea		1		1		
Cyst of brain		1		1		
Dementia, paralytica		3		2		1
Diabetes mellitus		1		1		
Dilatation, acute cardiac		6	1	5		
Dilatation of stomach, acute		1		1		
Diphtheria		9		7		2
Do.	Pleurisy, suppurative	1		1		
Do.	Pneumonia, broncho.	8		4		4
Do.	Pneumonia, lobar	1		1		1
Do.	Status lymphaticus	1		1		
Diverticulitis	Peritonitis, acute, general	1		1		
Dysentery, unclassified		2		1		1
Do.	Abscess, unqualified	1		1		
Embolism		1		1		
Encephalitis, acute		4	1	1		2
Encephalitis, epidemic (lethargic)		2	1	1		
Endocarditis, acute		4		4		
Do.	Septicemia	1	1			
Endocarditis, chronic	Edema of lung	1		1		
Gastritis, acute catarrhal		1	1			
Gastritis, acute phlegmonous	Peritonitis, acute, general	1		1		
Gastroenteritis	Dilatation, acute cardiac	1	1			
Glioma		4		4		
Goiter		1		1		
Gonococcus infection, unqualified		1		1		
Do.	Septicemia	1		1		
Hemoglobinuric fever		2				2
Hemorrhage into cerebrum		3		3		
Hemorrhage into pons		1			1	
Influenza		16		12		4
Do.	Abscess of brain	1		1		
Do.	Abscess of lung	1		1		
Do.	Dilatation, acute cardiac	1		1		
Do.	Erysipelas	1				1
Do.	Hemorrhage into cerebellum	1		1		
Do.	Nephritis, acute	1		1		
Do.	Peritonitis, acute, general	1		1		
Do.	Pleurisy, acute, fibrinous	1		1		
Do.	Pleurisy, serofibrinous	2		2		
Do.	Pleurisy, suppurative	32	1	28		3
Do.	Pneumonia, broncho	183	11	141	1	30
Do.	Pneumonia, lobar	37	1	30		5
Leukemia		1	1			
Malaria		4		1		3
Mastoiditis, acute	Septicemia	1	1			
Do.	Otitis media, acute	1				1

TABLE 3.—Casualties in the Navy and Marine Corps during the calendar year 1920—(Con.)

Cause.		Num- ber.	Navy.		Marine Corps.	
Primary.	Secondary.		Off- cers.	Men.	Off- cers.	Men.
DISEASES—continued.						
Measles	Abscess of lung	1		1		
Do.	Dilatation, acute cardiac	1		1		
Do.	Pleurisy, suppurative	1		1		
Do.	Pneumonia, broncho	20		19		1
Do.	Pneumonia, lobar	3		2		1
Meningitis, cerebral		5		1		4
Meningitis, cerebrospinal		15		15		
Do.	Pneumonia, lobar	1		1		
Meningitis, spinal		1		1		
Myelitis, disseminated		1		1		
Myocarditis, acute		2		1		1
Myocarditis, chronic		3	2			
Nephritis, acute		5	1	2		2
Nephritis, chronic interstitial		5	1	4		
Nephritis, chronic parenchymatous		1		1		
Obstruction, acute intestinal		4		2		2
Pachymeningitis, cerebral		2		2		
Paralysis, acute ascending		2				2
Paratyphoid fever	Pyelophlebitis	1		1		
Pericardium, adherent		1		1		
Peritonitis, acute general		4		4		
Pharyngitis, acute	Septicemia	1		1		
Pneumonia, broncho		11	2	9		
Do.	Bronchitis, acute	1		1		
Do.	Cellulitis	1		1		
Do.	Laryngitis, acute	1	1			
Do.	Malaria	1		1		
Do.	Pleurisy, suppurative	2		2		
Do.	Rheumatism, chronic, articular	1		1		
Do.	Septicemia	2	1	1		
Pneumonia, lobar		53	3	40		10
Do.	Abscess of lung	1		1		
Do.	Endocarditis, acute	1		1		
Do.	Gangrene of lung	1				1
Do.	Meningitis, cerebrospinal	1				1
Do.	Pleurisy, suppurative	12	1	11		
Do.	Septicemia	1		1		
Do.	Thrombosis	1	1			
Poliomyelitis, acute bulbar		1		1		
Psychosis (exhaustive, infective, and toxic).		1				1
Psychosis, unclassified		1		1		
Purpura, hemorrhagic		1		1		
Pyelonephritis		1		1		
Rheumatic fever, acute	Endocarditis, acute	1		1		
Do.	Septicemia	1		1		
Sarcoma		5		3		2
Do.	Dilatation, acute cardiac	1		1		
Scarlet fever		5		5		
Do.	Meningitis, cerebrospinal	1		1		
Do.	Pneumonia, broncho	3		2		1
Do.	Pneumonia, lobar	1		1		
Do.	Pyelitis	1		1		
Smallpox		1		1		
Status lymphaticus	Poison, ether, anesthesia	1		1		
Syphilis		3		3		
Do.	Dementia, paralytica	1		1		
Do.	Hemorrhage into cerebrum	1		1		
Do.	Nephritis, acute	1	1			
Do.	Pemphigus	1		1		
Do.	Pleurisy, suppurative	1		1		
Do.	Poison, novarsenobenzol	1		1		
Thrombosis		1		1		
Tuberculosis, abdominal		1		1		
Tuberculosis, acute bronchopneumonic		1		1		
Tuberculosis, acute general		1		1		
Do.	Dementia præcox	1		1		
Tuberculosis, acute pneumonic		2		1		1
Tuberculosis, acute pulmonary military		4		2		2
Tuberculosis, chronic pulmonary		64	7	45		12
Do.	Influenza	1		1		
Tuberculosis of bronchus		1		1		
Tuberculosis of spinal column		1		1		
Do.	Septicemia	1		1		

TABLE 3.—Casualties in the Navy and Marine Corps during the calendar year 1920—Con.

Cause.		Num-ber.	Navy.		Marine Corps.	
Primary.	Secondary.		Off-icers.	Men.	Off-icers.	Men.
DISEASES—continued.						
Tuberculosis, unqualified		2		2		
Do	Peritonitis, acute, general.	1				1
Tuberculous meningitis		3		3		
Typhoid fever.		6		6		
Ulcer of duodenum		1		1		
Do	Gastritis, chronic catarrhal	1				1
Ulcer of stomach	Measles	1		1		
Union of fracture faulty	Shock	1		1		
Total for diseases		713	49	547	3	114
INJURIES.						
Burn, multiple, "C-R"		3	2		1	
Burn, multiple, "F"		7		7		
Burn, multiple, "F"	Edema of lung.	2		2		
Burn, multiple, "F"	Septicemia.	1		1		
Burn, multiple, "G-R"		2			2	
Burn, multiple, "L"		4		3		1
Burn, upper extremity, "L"		1		1		
Crush, head, "G"		1		1		
Crush, multiple, "H-R"		1		1		
Crush, thorax, "I"		1		1		
Crush, toe, "I"	Septicemia	1		1		
Decapitation, "H-R"		1		1		
Drowning, "A"		4	1	3		
Drowning, "D"		107	1	92		14
Drowning, "D-R"		10	4	6		
Drowning, "D-S"		2		2		
Drowning, "G-R"		1		1		
Electric shock, "L"		2		1		1
Fracture, compound, skull, "F"		1				
Fracture, compound, skull, "G"		4	1	3		
Fracture, compound, skull, "G-R"		3			3	
Fracture, compound, skull, "H-R"		2	1	1		
Fracture, compound, skull, "I"		4		4		
Fracture, compound, skull, "L"		2		1		1
Fracture, simple, femur, "G"	Shock.	2		2		
Fracture, simple, femur, "L"	Thrombosis.	1		1		
Fracture, simple, multiple, "G"		1				1
Fracture, simple, multiple, "L"		1		1		
Fracture, simple, skull, "G"		5		5		
Fracture, simple, skull, "I"		2		2		
Fracture, simple, skull, "L"		5	1	3		1
Fracture, simple, vertebra, "J"		2		2		
Fracture, simple, vertebra, "L"		2		2		
Intracranial injury, "G"		1		1		
Intraspinal injury, "G"	Dilatation, acute cardiac.	1	1			
Intraspinal injury, "G-R"		1			1	
Intraspinal injury, "L"		2		2		
Multiple injuries, extreme, "G"		2	1	1		
Multiple injuries, extreme, "G-R"		3	3			
Multiple injuries, extreme, "I"		2		1		1
Multiple injuries, extreme, "L"		5		4		1
Rupture, artery, "G"		1		1		
Rupture, intestines, "I"		1				1
Rupture, kidney, "G"	Peritonitis, acute, general	1		1		
Rupture, liver, "L"		1		1		
Strangulation, "A"		1		1		
Strangulation, "L-U"		1		1		
Wound, incised, abdomen, "B"		1		1		
Wound, lacerated, brain, "A"		3	1	1		1
Wound, lacerated, brain, "B"		1		1		
Wound, lacerated, multiple, "G-R"	Septicemia	1			1	
Wound, lacerated, multiple, "H"		1				1
Wound, lacerated, neck, "L"		1		1		
Wound, lacerated, thorax, "F"		1				1
Wound, lacerated, thorax, "L"		1		1		
Wound, punctured, abdomen, "E"		3		2		1
Wound, punctured, abdomen, "L"		1				1
Wound, punctured, brain, "A"		5	1	2		2
Wound, punctured, brain, "E"		1				1
Wound, punctured, face, "E"		1	1			
Wound, punctured, head, "A"		7	1	5		1
Wound, punctured, head, "E"		1		1		
Wound, punctured, head, "L"		1				1

TABLE 3.—*Casualties in the Navy and Marine Corps during the calendar year 1920—Con.*

Cause.		Num- ber.	Navy.		Marine Corps.	
Primary.	Secondary.		Offi- cers.	Men.	Offi- cers.	Men.
INJURIES—continued.						
Wound, punctured, heart, "A"		4	1	1		2
Wound, punctured, heart, "B"		2		1		1
Wound, punctured, lung, "E"		2		2		
Wound, punctured, lung, "L"	Septicemia.	1		1		
Wound, punctured, multiple, "F"		1		1		
Wound, punctured, multiple, "K"		1		1		1
Wound, punctured, neck, "B"		1		1		
Wound, punctured, pelvic region, "K"		1		1		1
Wound, punctured, thorax, "A"		4	2		1	1
Wound, punctured, thorax, "B"		3		2		1
Wound, punctured, thorax, "E"		3		1		2
Wound, punctured, unqualified, "E"		1		1		
Total for injuries		265	23	192	9	41
POISONS.						
Poison, ether, anesthesia, "L"		2		1		1
Poison, acid, nitric, "A"		1		1		
Poison, alcohol, ethyl, acute, "L"	Myocarditis, chronic.	1		1		
Poison, alcohol, ethyl, chronic, "L"		3		1		2
Poison, arsenic compounds (antisyphilitic treatment) acute, "L"		1				1
Poison, carbon monoxide, acute, "L"		1		1		
Poison, food, animal, acute, "L"		1				1
Poison, gasoline (inhaled), acute, "L"		1		1		
Poison, heroin, acute, "L"		1				1
Poison, illuminating gas, acute, "L"		5		5		
Poison, mercuric chloride, acute, "A"		2	1	1		
Poison, morphine, acute, "L"		1				1
Poison, unqualified, acute, "L"		2		2		
Total for poisons		22	1	14		7

**INVALIDED FROM THE SERVICE.**TABLE 4.—*Discharged from the service by reason of physical disability during the calendar year 1920.*

Disability.	Number.	Navy.		Marine Corps.	
		Officers.	Men.	Officers.	Men.
DISEASES.					
Abscess of liver.....	1				1
Abscess of lung.....	1		1		
Abscess, subphrenic.....	1		1		
Abscess, unqualified.....	3		3		
Adhesions about gall bladder.....	1				1
Adhesions about stomach.....	1		1		
Adhesions of peritoneum.....	29	1	25		3
Albuminuria.....	1		1		
Amblyopia.....	26		24		2
Amputation stump.....	61	3	38	1	19
Anemia, simple.....	1		1		
Aneurism.....	2		1		1
Aneurismal varix.....	1				1
Angioma.....	1				1
Angiospastic edema.....	2		2		
Ankylosis of joint.....	52		41		11
Ankylosis of ossicles.....	1		1		
Appendicitis, chronic.....	2		2		
Arterial sclerosis, general.....	1				
Arthritis, acute.....	4		3		1
Arthritis, chronic.....	62	2	49	1	10
Arthritis, deformans.....	1		1		
Asthma.....	32		30		2
Astigmatism.....	27		26		

TABLE 4.—Discharged from the service by reason of physical disability during the calendar year 1920—Continued.

Disability.	Number.	Navy.		Marine Corps.	
		Officers.	Men.	Officers.	Men.
DISEASES—continued.					
Atrophy of (bone or cartilage).....	4		4		
Atrophy of muscle.....	17	1	16		
Atrophy of optic nerve.....	8		6		2
Atrophy of testicle.....	2		2		
Auto-intoxication, intestinal.....	1		1		
Bradycardia.....	1		1		
Bromidrosis.....	1				1
Bronchiectasis.....	3		3		
Bronchitis, chronic.....	83	1	70	2	10
Bursitis, acute.....	1				1
Bursitis, chronic.....	10		8		2
Callositas.....	1				1
Caries of tooth.....	21		20		1
Cataract.....	10		9		1
Cellulitis.....	3		3		
Cerebrospinal fever.....	3		2		1
Chancroid.....	3		3		
Chancreoid of lymph-node.....	1		1		
Chloasma.....	1		1		
Chorea.....	10		8		2
Chorea, chronic progressive.....	1		1		
Choroiditis.....	21		17		4
Cicatricial contraction.....	44		37		7
Cicatrix of skin.....	22	1	19		2
Clavus.....	1		1		
Colitis, chronic.....	1		1		
Color blindness.....	8		8		
Conjunctivitis, chronic.....	5		5		
Constitutional inferiority (mental).....	340		300		40
Constitutional psychopathic state.....	59		50		9
Contracture of joint.....	2		2		
Contracture of (muscle, fascia, tendon or sheath).....	20	1	17		2
Curvature of spine.....	15		15		
Cystitis, chronic (nonvenereal).....	5		5		
Cystoma.....	1		1		
Dacryocystitis.....	6		6		
Deafness.....	6	1	5		
Deformity of bladder, acquired.....	1				1
Deformity of penis, acquired.....	2		1		1
Dementia, paralytica.....	17		12	2	3
Dementia, praecox.....	166		139		27
Dentition.....	1		1		
Dermatitis, unqualified.....	1		1		
Detachment of retina.....	1		1		
Deviation of nasal septum.....	1		1		
Diabetes insipidus.....	1		1		
Diabetes mellitus.....	14		14		
Dilatation, chronic cardiac.....	1		1		
Dysentery, entamebic.....	3	1	2		
Dysentery, unclassified.....	1				1
Eczema.....	4		3		1
Elephantiasis, nonfilarial.....	1		1		
Encephalitis, acute.....	1		1		
Encephalitis, epidemic (lethargic).....	2		2		
Endocarditis, acute.....	2		2		
Endocarditis, chronic.....	22		22		
Epilepsy.....	229		202		27
Epilepsy, Jacksonian.....	7		4		3
Epistaxis.....	1				1
Esophagitis.....	1		1		
Eustachian salpingitis, chronic.....	5		3		2
Exophthalmic goiter.....	14		11		3
Favus.....	1				1
Fibroma.....	1		1		
Fistula, fecal.....	1		1		
Fistula in ano.....	3		2		1
Fistula of urethra.....	1		1		
Gastritis, chronic catarrhal.....	6		3		3
Gastroptosis.....	1		1		
Genu recurvatum.....	3		2		1
Genu valgum.....	2		1		1
Genu varum.....	1		1		
Glaucoma, chronic.....	1		1		
Goiter.....	42		37		5
Gonococcus infection of joints.....	27		26		1
Gonococcus infection of urethra.....	45		42		3

TABLE 4.—Discharged from the service by reason of physical disability during the calendar year 1920—Continued.

Disability.	Number.	Navy.		Marine Corps.	
		Officers.	Men.	Officers.	Men.
DISEASES—continued.					
Gonococcus infection, unqualified.	5		5		
Hallux valgus.	3		2		1
Hammer toe.	11		10		1
Heart block.	1		1		
Hematomyelia.	1		1		
Hemiplegia, old.	8		7		1
Hemophilia.	2		1		1
Hemoptysis.	1		1		
Hemorrhage into retina.	1				1
Hemorrhoids.	3		3		
Hernia, femoral.	4		4		
Hernia, inguinal.	82		75		7
Hernia of (muscle, fascia, tendon, or sheath).	4		4		
Hernia, umbilical.	3		3		
Hernia, ventral.	9		8	1	
Hydrocele of spermatic cord.	1		1		
Hydrocele of tunica vaginalis.	5		5		
Hydronephrosis.	2		2		
Hypermetropia.	17		17		
Hypertrophy of bone.	4		1		3
Hypertrophy of heart.	5		4		1
Hypertrophy of tonsil.	2		2		
Hypochlorhydria.	1		1		
Hypochondriasis.	2		1		1
Hysteria.	44		36		8
Ichthyosis.	2		2		
Imbecility.	6		6		
Impetigo contagiosa.	1		1		
Incontinence of urine.	65		62		3
Influenza.	4		4		
Insufficiency of ocular muscle.	17		17		
Irido-choroiditis.	1				1
Iridocyclitis.	1		1		
Keratitis.	6		6		
Keratitis, phlyctenular.	1		1		
Keratosis.	1		1		
Laryngitis, chronic.	5		4		1
Leprosy.	3		2		1
Leukoma.	9		9		
Locomotor ataxia.	2		2		
Loose body in joint.	5		3		2
Loss of substance of (bone or cartilage).	18	1	11		6
Lymphadenitis, chronic.	5		5		
Malaria.	5		5		
Malformations, congenital.	43		38		5
Mallet finger.	1		1		
Malnutrition.	17		17		
Mastoiditis, acute.	1		1		
Mastoiditis, chronic.	13		12		1
Meningitis, cerebral.	1		1		
Meningitis, cerebrospinal.	2		1		1
Metatarsalgia.	2		1		1
Migraine.	1		1		
Monon.	95		94		1
Myelitis, disseminated.	1		1		
Myelitis, transverse.	2	1	1		
Myocarditis, acute.	1		1		
Myocarditis, chronic.	55	1	53		1
Myopia.	22		21		1
Mycosis, chronic.	4		4		
Mycosis, traumatic, ossifying.	1				1
Nausea marina.	3		3		
Nephrosis.	2		2		
Nephritis, acute.	3		3		
Nephritis, chronic interstitial.	14	1	12		1
Nephritis, chronic parenchymatous.	23	1	21		1
Nephrolithiasis.	4	1	3		
Neuralgia.	2		2		
Neurasthenia.	78	1	62		15
Neuritis.	21		18	2	1
Neuritis, multiple.	3		3		
Neuritis, optic.	12		9		3
Neuroma.	1				1
Neuroretinitis.	4		4		
Neurosis, intestinal.	1		1		
Neurosis, occupational.	1	1			

TABLE 4.—Discharged from the service by reason of physical disability during the calendar year 1920—Continued.

Disability.	Number.	Navy.		Marine Corps.	
		Officers.	Men.	Officers.	Men.
DISEASES—continued.					
Neurosis of bladder.....	47		44		2
Neurosis, traumatic.....	9		7		2
Neurosis, war.....	12		7		5
Nystacmus.....	3		2		1
Obesity.....	5		5		
Orchitis, acute (nonvenereal).....	1		1		
Orchitis, chronic (nonvenereal).....	1				1
Osteitis deformans.....	1		1		
Osteoarthopathy, hypertrophic.....	1		1		
Osteoma.....	4		3		1
Osteomyelitis, chronic.....	14		8		6
Otitis interna, chronic.....	4		3		1
Otitis media, acute.....	3		3		
Otitis media, chronic.....	292	4	265		23
Palpitation, cardiac.....	1		1		
Papiloma.....	1		1		
Paralysis of nerve.....	14		7		7
Paralysis of ocular muscle.....	3		2		1
Paralysis of vocal cords.....	6		2		4
Paramyoclonus multiplex.....	1		1		
Paranoia.....	5		5		
Paranoiac state.....	5		3		2
Paraplegia, ataxic.....	1		1		
Perforated nasal septum.....	1		1		
Pericarditis.....	6		6		
Pericostitis, chronic.....	11		10		1
Pes cavus.....	6		5		1
Pes planus.....	400		346		54
Phlebitis.....	6		6		
Pleurisy, chronic fibrinous.....	9		8		1
Pleurisy, serofibrinous.....	2		1		1
Pleurisy, suppurative.....	61		56		6
Pleurotic adhesions.....	11		11		
Pneumonia, lobar.....	2		2		
Pneumonoconiosis.....	1		1		
Pneumothorax.....	1		1		
Pellomylitis, chronic anterior.....	1		1		
Presbyopia.....	2		1		1
Prolapse of rectum.....	2		1		1
Psoriasis.....	10		9		1
Psychasthenia.....	13	1	12		
Psychoneurosis.....	14		9		5
Psychosis, epileptic.....	2		2		
Psychosis (exhaustive, infective, and toxic).....	2		2		
Psychosis, hysterical.....	5		3		2
Psychosis, manic depressive.....	18	1	14		3
Psychosis, traumatic.....	2				2
Psychosis, unclassified.....	11	1	6		4
Pyelitis.....	2		2		
Pyelonephritis.....	2		1		1
Pyorrhoea, alveolaris.....	9		9		
Retinitis.....	11		9		2
Rheumatic fever, acute.....	2		2		
Rheumatic fever, subacute.....	5		5		
Rheumatism, chronic articular.....	36		31		5
Rheumatism muscular.....	9		9		
Rhinitis, atrophic.....	9		8		1
Sarcoma.....	2	1	1		
Scalies.....	1		1		
Scleritis.....	1		1		
Sclerosis, disseminated.....	2		2		
Sclerosis, lateral.....	1	1			
Sinus.....	2		2		
Sinusitis, ethmoidal.....	3	1	2		
Sinusitis, frontal.....	9		7		2
Sinusitis, maxillary.....	3		3		
Somnambulism.....	5		5		
Splanchnoptosis.....	1		1		
Spur on nasal septum.....	2		2		
Stammering.....	5		5		
Stenosis of nasal duct.....	1		1		
Stricture of ureter.....	1		1		
Stricture of urethra.....	2		2		
Stuttering.....	16		15		1
Syphilis.....	79		78		1



TABLE 4.—Discharged from the service by reason of physical disability during the calendar year 1920—Continued.

Disability.	Number.	Navy.		Marine Corps.	
		Officers.	Men.	Officers.	Men.
DISEASES—continued.					
Tachycardia.....	17		13		4
Talipes.....	5		5		
Tenocynovitis.....	2		2		
Thyroiditis, chronic.....	4		3		1
Tic, convulsive.....	1		1		
Tic, psychical.....	2		2		
Tonsillitis, chronic.....	1		1		
Trachoma.....	9		8		1
Tuberculosis, abdominal.....	2		2		
Tuberculosis, acute bronchopneumonic.....	3		2		1
Tuberculosis, acute general.....	1		1		
Tuberculosis, acute pneumonic.....	3		1		2
Tuberculosis, acute pulmonary military.....	4		3		1
Tuberculosis, chronic pulmonary.....	600	39	474		87
Tuberculosis of joint.....	8		6		2
Tuberculosis of larynx.....	2		2		
Tuberculosis of pleura.....	3		2		1
Tuberculosis of spinal column.....	4		4		
Tuberculosis, unqualified.....	13		11		2
Ulcer of duodenum.....	2		2		
Ulcer of eye and adnexa.....	3		3		
Ulcer of skin.....	1		1		
Ulcer of stomach.....	6		5		1
Uncinariasis.....	1		1		
Union of fracture faulty.....	95		88		7
Urethritis, chronic (nonvenereal).....	1		1		
Urticaria.....	1		1		
Valvular disease, chronic cardiac.....	447	6	421		20
Variocoele.....	13		12		1
Varix.....	11	1	8		2
Total for diseases.....	5,019	76	4,350	9	584
INJURIES.					
Avulsion, foot "L".....	1		1		
Burn, hand "L".....	1		1		
Burn, multiple "C".....	1		1		
Burn, multiple "F".....	4		4		
Burn, multiple "L".....	1		1		
Compression, brain "L".....	1		1		
Crush, finger "I".....	2		2		
Crush, foot "L".....	1			1	
Crush, hand "H".....	1		1		
Crush, leg "H".....	1		1		
Crush, shoulder "H".....	1			1	
Crush, toe "I".....	2		2		
Dislocation, ankle "G".....	1		1		
Dislocation, hip "G".....	1		1		
Dislocation, intra-articular cartilage "G".....	1		1		
Dislocation, knee "G".....	1		1		
Dislocation, knee "I".....	1		1		
Dislocation, knee "K".....	1				1
Dislocation, knee "L".....	1		1		
Dislocation, shoulder "G".....	3		2		1
Dislocation, shoulder "I".....	1		1		
Dislocation, shoulder "L".....	1		1		
Dislocation, vertebra "J".....	2		2		
Foreign body, traumatic, chest "K".....	1				1
Foreign body, traumatic, eye "L".....	1		1		
Fracture, compound, femur "E".....	1				1
Fracture, compound, femur "G".....	1				1
Fracture, compound, femur "K".....	4				4
Fracture, compound, humerus "K".....	2				2
Fracture, compound, humerus "L".....	1		1		
Fracture, compound, metacarpal "G".....	1		1		
Fracture, compound, metatarsal "E".....	1		1		
Fracture, compound, metatarsal "I".....	1		1		
Fracture, compound, metatarsal "L".....	1		1		
Fracture, compound, radius and ulna "I".....	2		2		
Fracture, compound, radius and ulna "K".....	1				1
Fracture, compound, rib "K".....	1				1
Fracture, compound, skull "I".....	1		1		
Fracture, compound, tibia "E".....	1		1		
Fracture, compound, tibia "G".....	1		1		
Fracture, compound, tibia "L".....	1				1

TABLE 4.—Discharged from the service by reason of physical disability during the calendar year 1920—Continued.

Disability.	Number.	Navy.		Marine Corps.	
		Officers.	Men.	Officers.	Men.
INJURIES—continued.					
Fracture, compound, tibia and fibula "E".....	1		1		
Fracture, compound, tibia and fibula "G".....	1		1		
Fracture, compound, tibia and fibula "G-R".....	1		1		
Fracture, compound, tibia and fibula "I".....	2				2
Fracture, compound, tibia and fibula "K".....	2				2
Fracture, compound, tibia and fibula "L".....	5	1	4		
Fracture, simple, about wrist "G".....	1		1		
Fracture, simple, clavicle "J".....	1		1		
Fracture, simple, femur "G".....	3		3		
Fracture, simple, femur "L".....	4		4		
Fracture, simple, fibula "G".....	2		2		
Fracture, simple, humerus "G".....	2		1		1
Fracture, simple, humerus "H".....	1		1		
Fracture, simple, metacarpal "H".....	1		1		
Fracture, simple, metacarpal "J".....	1		1		
Fracture, simple, metatarsal "G".....	1		1		
Fracture, simple, metatarsal "I".....	1				1
Fracture, simple, metatarsal "L".....	2		2		
Fracture, simple, multiple "G".....	1				1
Fracture, simple, patella "G".....	1		1		
Fracture, simple, radius "G".....	1		1		
Fracture, simple, radius and ulna "G".....	2		2		
Fracture, simple, radius and ulna "L".....	1		1		
Fracture, simple, scapula "L".....	1		1		
Fracture, simple, skull "G".....	1		1		
Fracture, simple, tibia "G".....	1		1		
Fracture, simple, tibia and fibula "G".....	2		2		
Fracture, simple, tibia and fibula "H".....	2		2		
Fracture, simple, tibia and fibula "I".....	1		1		
Fracture, simple, tibia and fibula "L".....	1		1		
Fracture, simple, ulna "G".....	2		2		
Fracture, simple, vertebra "G".....	2	1	1		
Fracture, simple, vertebra "G-R".....	1				1
Intracranial injury "H".....	2		2		
Intraspinal injury "G".....	1	1			
Multiple injuries, extreme "E".....	1	1			
Multiple injuries, extreme "G".....	1	1			
Rupture, globe, eye, traumatic "F".....	1	1			
Rupture, ligament, foot, "H".....	1		1		
Sprain, hip "L".....	1				1
Sprain, knee "G".....	1		1		
Sprain, vertebra "G".....	1		1		
Sprain, vertebra "J".....	1		1		
Synovitis, knee, traumatic "G".....	3	1	2		
Synovitis, knee, traumatic "L".....	1	1			
Wound, incised, finger "L".....	2		2		
Wound, lacerated, ankle "K".....	2				
Wound, lacerated, arm "K".....	7			1	6
Wound, lacerated, elbow "K".....	1			1	
Wound, lacerated, eye and adnexa "E".....	2		1		1
Wound, lacerated, eye and adnexa "K".....	2				2
Wound, lacerated, eye and adnexa "L".....	6		6		
Wound, lacerated, finger "E".....	1		1		
Wound, lacerated, finger "L".....	1		1		
Wound, lacerated, foot "E".....	1		1		
Wound, lacerated, foot "K".....	3				3
Wound, lacerated, forearm "G".....	1		1		
Wound, lacerated, forearm "K".....	1				1
Wound, lacerated, hand "F".....	1				1
Wound, lacerated, hand "G".....	1		1		
Wound, lacerated, hand "H".....	2		2		
Wound, lacerated, hand "K".....	1				1
Wound, lacerated, hip "K".....	1				1
Wound, lacerated, knee "J".....	1				1
Wound, lacerated, leg "K".....	9				9
Wound, lacerated, multiple "E".....	1		1		
Wound, lacerated, multiple "F".....	1		1		
Wound, lacerated, multiple "I".....	1		1		
Wound, lacerated, multiple "K".....	8			1	
Wound, lacerated, shoulder "E".....	2				2
Wound, lacerated, thigh "K".....	12			2	10
Wound, punctured, abdomen "K".....	1				1
Wound, punctured, arm "E".....	1				1
Wound, punctured, arm "K".....	1				1
Wound, punctured, eye and adnexa "E".....	1				1
Wound, punctured, eye and adnexa "F".....	1		1		

TABLE 4.—Discharged from the service by reason of physical disability during the calendar year 1920—Continued.

Disability.	Number.	Navy.		Marine Corps.	
		Officers.	Men.	Officers.	Men.
INJURIES—continued.					
Wound, punctured, eye and adnexa "J"	1		1		
Wound, punctured, eye and adnexa "L"	3		2		1
Wound, punctured, face "K"	1				1
Wound, punctured, foot "E"	1				1
Wound, punctured, forearm "K"	1			1	
Wound, punctured, hand "E"	1		1		
Wound, punctured, knee "F"	1				1
Wound, punctured, leg "K"	1				1
Wound, punctured, multiple "K"	3				3
Wound, punctured, neck "K"	1				1
Wound, punctured, shoulder "E"	1		1		
Wound, punctured, shoulder "K"	1				1
Wound, punctured, thigh "K"	4				4
Wound, punctured, thorax "K"	1				1
Wound, punctured, upper extremity "K"	1				1
Total for injuries.....	219	8	112	8	91
POISONS.					
Poison, cocaine, chronic "L"	3		3		
Poison, heroin, chronic "L"	2		2		
Poison, morphine, chronic "L"	9		9		
Poison, opium, chronic "L"	1				1
Poison, warfare gas, chronic "K"	6				6
Total for poisons.....	21		14		7

**OPERATIONS.**

TABLE 5.—Report of surgical operations for the calendar year 1920.

Operation.	Result.						Anesthetic employed.				
	Cured.	Died.	Improved.	Unimproved.	Transferred.	Chloroform.	Ether.	Ether with other.	Gas.	Other general.	Local or none.
Abrasion, knee, incision and drainage.....	1						1				
<b>Abscess:</b>											
Abdominal, drained.....	3			1			3				1
About rectum, incision and drainage.....	24		2	1	1		19		1		6
Appendiceal, incision and drainage.....	1						1				
Arm, incision and drainage.....	2		1				1	1	1		
Axilla, incision and drainage.....	13				1		7		1		4
Back, incision and drainage.....	1										1
Brain, trephine.....		4					3				1
Breast, incision and drainage.....	1										1
Buttock, incision and drainage.....	6						3		1		2
Cervical, incision and drainage.....	4		1				5				
Chest, rib resection.....					1		1				
Chin, incision and drainage.....	1		1						1		1
Ear, incision and drainage.....	1										1
Epidural, exploratory laparotomy.....	1						1				
Finger, amputation.....	1		2								3
Finger, incision.....	6						1	3			2
Foot, incision and drainage.....	3					1	1		1		
Hand, incision and drainage.....	3						3				
Jaw, incision and drainage.....	6			1			5		2		
Kidney, exploratory laparotomy.....			1						1		
Kidney, incision and drainage (died: 1 septicemia).....	1	1					2				
Knee, incision and drainage.....	1				2		1		1		1
Leg, incision and drainage.....	3		2				1		2		2
Liver, incision and drainage.....	1						1				
Lung, incision and drainage.....			2				2				

TABLE 5.—*Report of surgical operations for the calendar year 1929—Continued.*

Operation.	Result.					Anesthetic employed.					
	Cured.	Died.	Improved.	Unimproved.	Transferred.	Chloroform.	Ether.	Ether with other.	Gas.	Other general.	Local or none.
Foreign body, traumatic—Continued.											
Eye, removal	41										41
Foot, excision	5		2				3				4
Hand, excision	1						1				1
Knee, excision	1		2								2
Leg, excision	2						2				
Leg, incision and drainage	1						1				
Skull, exploratory			1								1
Thigh, excision	1		1				1				1
Fracture of											
Clavicle, simple, clavotomy	4		2				5		1		
Clavicle, simple, suture	2				1		2	1			
Clavicle, simple, wired	1						1				
Femur, compound, amputation	1		1				1				
Femur, compound, manipulation	1						1				
Femur, compound, plated	1						1				
Femur, compound, plate removed	2						2				
Femur, compound, fixation	3						3				
Femur, simple, bone transplantation—died shock		1					1				
Femur, simple, intermediate bony peg			1				1				
Femur, simple, open reduction	4						5				
Femur, simple, plated			2		1		3				
Femur, simple, plate removed	1						1				
Femur, simple, suture, died, thrombosis		1									
Fibula, simple, open reduction			1				1				
Humerus, compound, bone graft	1						1				
Humerus, compound, curetted			2	1			3				
Humerus, compound, plated	1						1		1		
Humerus, compound, reduction	1		2		1		3				
Humerus, simple, clavotomy	1		1				2				
Humerus, simple, reduction	2		1				3				
Humerus, simple, transplantation			1				1				
Humerus, simple, wired	1								1		
Maxilla, simple, open reduction	1						1	1			
Maxilla, compound, compound, reduction	2		1				2				1
Maxilla, simple, simple, reduction	1						1				
Metatarsal, compound, amputation	1										1
Metatarsal, simple, arthroplasty				1				1			
Metatarsal, simple, osteotomy	3						2				1
Metatarsal, simple, reduction	4			1	1		4				
Nasal bone, simple, manipulation	2						2				
Nasal bone, simple, reduction	3						3				1
Phalanx, simple, suture	2		1				3		1		
Phalanx, simple, wired	1						1				
Phalanx, 1st, simple, reduction	1		1				1				1
Phalanx, hand, compound, amputation	4						3				
Phalanx, hand, compound, reduction	4						3				1
Phalanx, hand, compound, suture and suture											
Phalanx, hand, simple, reduction	1		1				1				1
Phalanx, 1st, simple, amputation	2						1				
Phalanx, 1st, simple, reduction	1								1		
Ribs, simple, curetted and curetted	1						1				
Ribs, simple, wired			1				1				
Ribs, simple, reduction	5		4				5				4
Ribs, simple, suture	1						1				
Ribs and pelvis, compound, bone graft			1							1	
Ribs and pelvis, compound, curetted				1			1				
Ribs and pelvis, simple, reduction	2		1				3				
Ribs and pelvis, simple, wired			1				1				
Scapula, simple, removal of bone frag- ments											
Skull, compound, depression	3						3				
Skull, compound, trephine died, edema shock		2	1		1		2				2
Skull, simple, trephine	1	1					2				
Tarsus, simple, open reduction			1				1				
Tibia, compound, bone graft	2						2				
Tibia, compound, curetted			1				1				
Tibia, compound, plated	2						2				
Tibia, compound, plate removed	12						1		1		
Tibia, compound, suture	1		1				1				
Tibia, compound, suture and suture	1						1				
Tibia, simple, fragments nailed			1				1				

TABLE 5.—Report of surgical operations for the calendar year 1920—Continued.

Operation.	Result.					Anesthetic employed.					
	Cured.	Died.	Improved.	Unimproved.	Transferred.	Chloroform.	Ether.	Ether with other.	Gas.	Other general.	Local or none.
<b>Fracture of:</b>											
Tibia, simple, nails removed.....	1						1				
Tibia, simple, reduction.....	1						1				
Tibia and fibula, compound, amputation.....	1		3				4				
Tibia and fibula, compound, curetted.....			3	1			4				
Tibia and fibula, compound, fluoroscopic reduction.....			1				1				
Tibia and fibula, compound, manipulation.....	2		1				3				
Tibia and fibula, compound, open reduction.....			2		1		1				2
Tibia and fibula, compound, osteotomy.....			1			1					
Tibia and fibula, compound, plated.....			2	1			3				
Tibia and fibula, compound, plate removed.....	2		3				3		2		
Tibia and fibula, compound, sequestrectomy.....	1						1				
Tibia and fibula, compound, wired.....			1		1		2				
Tibia and fibula, simple, bone graft.....			4				1				
Tibia and fibula, simple, reduction.....	1		4		1		4	1			
Ulna, simple, open reduction.....	1						1				
Ulna, simple, plated.....	1								1		
Vertebrae, simple, Hibb's operation.....	1		2				2				
Frostbite, finger, amputation.....			2				1				1
Furunculosis, excision, plastic.....	2								2		
Ganglion, excision.....	5						2				3
Gangrene, amputation.....	4						2		1		1
Gangrene, cauterization.....	2						1		1		
Gastritis, acute, catarrhal, exploratory laparotomy.....			1				1				
Gastritis, chronic catarrhal, adhesions broken up.....	1						1				
Gastritis, acute, phlegmonous, exploratory laparotomy (died: 1, peritonitis).....		1					1				
Gastroenteritis, exploratory laparotomy.....	2						2				
Gastropexy, gastropexy.....			1				1				
Glioma, craniotomy.....				2			3				
Gitter, thyroidectomy.....	5	1					6				
Gonococcus infection of epididymis, epididymectomy.....	3		5	2		1	6		1		2
Hallux valgus, Mayo.....	10		2				8		1		3
Hammer toe, amputation.....	10						5				5
Hammer toe, tenotomy.....	8						1				7
Hematoma, scalp, incision and drainage.....	1						1				
Hematoma, thigh, incision.....	2						1				1
Hemorrhoids, hemorrhoidectomy.....	444		5			3	377	3	4		62
<b>Hernia:</b>											
Epigastric, herniotomy.....	7						5				2
Femoral, herniotomy.....	6						5				1
Inguinal, herniotomy.....	661		8			1	661	14	13		10
Muscle, fascia, tendon, repair.....	1						1				
Umbilical, herniotomy.....	6						5	1			
Ventral, herniotomy (died: 1, obstruction, acute intestinal).....	21	1	1				19	2	2		
Hydrocele, excision and repair.....	42		2				38	1			5
Hydrocele of tunica vaginalis, eversion of sac.....	9						8		1		
Hydrocele of tunica vaginalis, excision and repair.....	13		1				10		2		2
Hydronephrosis, nephrectomy.....	1						1				
Hypermetropia, tenotomy.....	1										1
Hypertrophy of bone, leg, excision.....	1						1				
Hypertrophy of bone, nose, turbinectomy.....	26						1				25
Hypertrophy of mammary gland, excision.....	3						3				
Hypertrophy of tonsil, tonsillectomy (died: 1, ether poisoning).....	2,114	1				2	505	1			1,807
Inflammation of salivary gland, excision and removal.....	1						1				
Ingrowing nail, excision.....	79		1				6				74
Insufficiency of ocular muscle, plastic.....	4										4
Intraspinal injury, laminectomy.....		1					1				
<b>Lipoma:</b>											
Back, excision and suture.....	4						3				1
Leg, excision.....	1										1
Location not stated, excision.....	8						2				6
Shoulder, excision.....	2		1				2				1
Thigh, excision.....	1										1
Loose body in joint, unqualified, extraction.....	6						4	2			

TABLE 5.—*Report of surgical operations for the calendar year 1920—Continued.*

Operation.	Result.						Anesthetic employed.			
	Cured.	Died.	Improved.	Unimproved.	Transferred.	Chloroform.	Ether.	Ether with other.	Gas.	Other general. Local or none.
Loss of substance of bone, bone graft.....	1		1				2			
Loss of substance, nerve, suture.....	1						1			
Lymphadenitis, acute, cervical, excision.....	9						8			1
Lymphadenitis, acute, cervical, incision and drainage.....	2			2						4
Lymphadenitis, acute, inguinal, excision.....	19		4	1			16			8
Lymphadenitis, acute, inguinal, incision.....	42						27	1		14
Lymphangitis, incision and drainage.....	4						1		3	
Malformations, congenital, amputation.....	1									1
Malformations, congenital, Bevan.....	1						1			
Malformations, congenital, repair.....	3		1				3			1
Mastitis, chronic, amputation of breast.....	1						1			
Mastoiditis, mastoidectomy (died: 1 ether poisoning, 2 septicaemia).....	126	3	36	1	1	1	150	2		13
Meninigitis, cerebral, trephine.....							1			
Multiple injuries, extreme, ligation (died: 1 shock).....		1					1			
Myoma, excision.....	1						1			
Myositis, traumatic, ossifying, thigh, incision, and curettage.....	1						1			
Necrosis of bone:										
Femur, curetted.....	1		2				3			
Humerus, curetted.....	1						1			
Maxilla, curetted.....	2						2			
Metacarpal, curetted.....	1		1				1			1
Phalanx, amputation.....	2						2			
Phalanx, curetted.....	1		1				1			1
Scaphoid, sequestrotomy.....				1			1			
Tibia, curetted.....			2				2			
Unqualified, curetted.....	8		1				5			4
Nephrolithiasis, nephrolithotomy.....	6						5			
Nevitis, nerve freed.....	2		1				3			
Neuroma, arm, repair of severed nerve.....	1						1			
Obstruction, acute intestinal:										
Anastomosis.....	1						1			
Enterostomy (died: 1 peritonitis, 1 toxemia).....		2					1			1
Exploratory laparotomy.....	2						2			
Resection (died: 1 shock).....	1	1					2			
Orethritis, orchidectomy.....	2						1			1
Osteoma:										
Femur, excision.....	1						1			
Metacarpal, excision.....	1						1			
Metatarsal, excision.....	3						3			
Os Calcis, excision.....	4						4			
Tibia, excision.....			1							1
Unqualified, excision.....	2		1				3			
Osteomyelitis:										
Femur, amputation.....			1					1		
Femur, curetted (died: 1 shock).....	4	1	2				7			
Humerus, bone graft.....	1						1			
Humerus, curetted.....	3						2			1
Humerus, radius and ulna, curetted.....			5				4		1	
Phalanges, amputation.....	1		1				2			
Radius and ulna, incision and drainage.....	1		1				2			
Rib, resection.....			1				1			
Tibia, curetted.....	2		1				3			
Tibia, osteotomy.....	4						4			
Tibia and fibula, amputation.....			2				2			
Unqualified, amputation.....	1						1			
Unqualified, incision and drainage.....	11		7	2	1		17		1	3
Unqualified, osteotomy.....	5		3		1		6			1
Otitis media, acute:										
Mastoidectomy.....	1						1			
Paracentesis.....	26		7	7			2		2	3
Otitis media, chronic:										
Paracentesis.....	1									1
Tonsillectomy.....	1						1			
Panophthalmitis, eye, enucleation.....	1						1			
Papilloma, larynx, excision.....	1		1				2			
Papilloma, scrotum, excision.....	3						2			1
Paralysis of nerve, osteotomy.....	1						1			
Paraphimosis, circumcision.....	1									1
Perichondritis of auricle, incision and drainage.....	1						1			
Periostitis, rib, curetted.....	1						1			
Periostitis, tibia, incision and drainage.....	3						3			

TABLE 5.—Report of surgical operations for the calendar year 1920—Continued.

Operation.	Result.					Anesthetic employed.					
	Cured.	Died.	Improved.	Unimproved.	Transferred.	Chloroform.	Ether.	Ether with other.	Gas.	Other general.	Local or none.
Peritonitis, exploratory laparotomy (died: 1 hemorrhage, 2 septicæmia, 1 toxæmia)...	1	4									1
Phimosis, circumcision	210						4		4		179
Polypus, aural, excision	1										1
Polypus, nasal, excision	36		3								39
Prolapse of rectum, resection	1						1				
Prostatitis, acute, prostatectomy			1				1				
Pterygium, excision and repair	28		1								30
Pyelitis, incision and drainage	2						2				
Pyelonephritis, nephrectomy (died: 1 multiple abscesses)		1						1			
Pleurisy, serofibrinous, aspiration	3		2			1	2				2
Pleurisy, suppurative, rib resection (died: 2 septicæmia)	19	2	10		1	1	8		7		16
Pleurisy, suppurative, thoracotomy (died: 10 septicæmia)	44	10	19	5	1	3	18		11		47
Redundant prepuce, circumcision	416						20				397
Redundant scrotum, amputation	3		1				2		1		
Retention cyst, unqualified, excision	4										4
Rhinitis, turbinectomy	27										27
Rhinitis, atrophic, plastic repair			1				1				
Rhinitis, hypertrophic, paracentesis	1										1
Rupture, traumatic:											
Duodenum, exploratory laparotomy (died: 1 peritonitis)		1					1				
Kidney, exploratory laparotomy (died: 1 peritonitis)		1					1				
Muscle, sheath and tendon, suture	1						1				
Nerve, traumatic, suture	1						1				
Tendon, traumatic, tenorrhaphy	2						2				
Urethra, repair	1		1				2				
Sarcoma, arm, excision	1		1				1				1
Sarcoma, rectum, radium				4					4		
Sinus:											
Abdomen, repair				1							1
Arm, repair	1		1								2
Chest, rib resection			1				1				
Hip, curetted and drained			1				1				
Leg, curetted	2		1				3				1
Unqualified, curetted	8						7				
Sinusitis, ethmoidal, ethmoidectomy	21		1				8				14
Sinusitis, frontal, evacuation of antrum	8		1			1	7				1
Sinusitis, maxillary, paracentesis	42		6	1			3				46
Sinusitis, sphenoidal, curetted	1										1
Spermatocèle, excision and drainage	1						1				
Splanchnoptosis, adhesions severed			1				1				
Spur on nasal septum, excision	3										3
Strabismus, tenotomy	4										4
Stricture of ureter, catheterization	4		1				1				
Stricture of urethra, urethrotomy			1				1				4
Synovitis, knee, arthrotomy	2			2			4	1			
Syphilis, sternum, curetted			1				1				
Thrombosis, excision (died: 1 meningitis)		1		1			2				
Thyroiditis, chronic, thyroidectomy	2						1				1
Trachoma, curetted	2						2				
Trench foot, amputation toes	1										1
Tuberculosis:											
Abdominal, laparotomy	1	1			1		2		1		
Acute, general, laparotomy			4	1	1	2	3				
Axillary glands, resection	1						1				
Buttocks, incision and drainage							1				
Cervical, excision	2			1		2	1				
Hand, amputation	1						1				
Hip, incision and drainage			1				1				
Joint, ankle, amputation	1						1				
Joint, ankle, incision and drainage	1		2	4			5	2			
Joint, arm, incision and drainage			1			1					
Joint, shoulder, incision and drainage			4			1	3				
Kidney, nephrectomy	1						1				
Rib, resection			3				2				1
Skin, leg, curetted	1								1		
Spinal column, bone graft (died: 1 septicæmia)		1	1				2				
Testicle, orchidectomy			1								1

TABLE 5.—Report of surgical operations for the calendar year 1920—Continued.

Operation.	Result.					Anesthetic employed.					
	Cured.	Died.	Improved.	Unimproved.	Transferred.	Chloroform.	Ether.	Ether with other.	Gas.	Other general.	Local or none.
<b>Tumor:</b>											
Eyelid, excision.....	1										1
Hand, excision.....	1						1				
Leg, excision.....	1						1				
Neck, excision.....	1										1
Shoulder, excision.....	1						1				
Unqualified excision.....	3										3
Ulceromembranous angina, tonsillectomy.....	1						1				
<b>Ulcer of:</b>											
Duodenum, celiotomy.....					1		1				
Duodenum, gastroenterostomy.....	3	2	1		1		7				
Intestines, laparotomy.....	1						1				
Skin, excision.....	2										2
Skin, skin graft.....	1										1
Stomach, laparotomy.....	3						3				
Stomach, gastrectomy.....	1		2				3				
Stomach, gastroenterostomy.....	3		2				5				
<b>Union of fracture faulty:</b>											
Bone graft.....	1		1				1			1	
Bone transplantation.....	1		1				1		1		
Lane plate.....	1		1				2				
Lane plate removed.....	2						2				
Osteotomy.....	8						7		1		
Refractured.....			1				1				
Sequestrotomy (died: 1 shock).....	1	1					1		1		
Wire removed.....	1						1				
<b>Varicocele, varicocelelectomy.....</b>	<b>457</b>		<b>2</b>		<b>1</b>		<b>290</b>	<b>2</b>	<b>11</b>		<b>157</b>
<b>Varix, varicotomy.....</b>	<b>61</b>						<b>48</b>	<b>1</b>	<b>3</b>		<b>9</b>
Wart, eye, removal.....	1										1
Wart, penis, removal.....	2						2				
Wart, location not stated, removal.....	8						6		1		
<b>Wound, incised:</b>											
Abdomen, suture.....	1		1				2				
Arm, suture.....	4				1		4				
Chest, suture.....	1						1				
Finger, incision.....	1						1				
Finger, tenorrhaphy.....	2		1				3				
Hand, suture.....	1										1
Leg, ligation.....	1										1
Location not stated, suture.....	2						2				
Neck, suture.....	1										1
Scalp, suture.....	2						1				1
Wrist, tenorrhaphy.....	1						1				
<b>Wound, lacerated:</b>											
Ankle, bullet excised.....	1										1
Ankle, suture.....	1										1
Ankle, tenotomy.....			1				1				
Arm, amputation.....			1				1				
Arm, bone graft.....			2				2				
Arm, curettage and drainage.....	1			1			2				
Arm, plastic repair.....	1		1	2			4				
Arm, suture.....	5						4				1
Cheek, plastic repair.....	1						1				
Eye, enucleation.....	2		1				3				
Eye, plastic repair.....			1				1				
Eye, suture.....	2										2
Eyelid, suture.....	2						1				1
Face, suture.....	4				1		1				4
Finger, amputation.....	20		1		1		7		2		13
Finger, incision and drainage.....	1						1				
Finger, suture.....	7		1		1				1		8
Fingers, amputation.....	5		1				4				2
Foot, amputation toe.....			1	1			1		1		
Foot, plastic repair.....	1			1			2				
Foot, suture.....	4		1	1	1		1	1			4
Hand, amputation.....	1						1				
Hand, amputation finger.....	2		1				1		1		1
Hand, foreign body removed.....	1										1
Hand, incision and drainage.....	3		1				4				
Hand, suture.....	11		1				3				9
Head, osteotomy.....			1				1				
Knee, foreign body removed.....	2						2				
Leg, plastic repair.....	4		3	1			3		3		2
Leg, suture.....	6						3				3



TABLE 5.—*Report of surgical operations for the calendar year 1920—Continued.*

Operation.	Result.					Anesthetic employed.					
	Cured.	Died.	Improved.	Unimproved.	Transferred.	Chloroform.	Ether.	Ether with other.	Gas.	Other general.	Local or none.
Wound, lacerated—Continued.											
Scalp, suture.....	1				2				1		2
Scrotum, plastic repair.....	1						1				
Thigh, plastic repair.....				1			1				
Thigh, suture.....	1						1				
Toe, amputation.....	1		2			1	2				
Wound, punctured:											
Abdomen, celiotomy (died: 1 hemorrhage, 1 shock).....		2					2				
Abdomen, enterorrhaphy.....			1				1				
Abdomen, laparotomy.....			1								1
Arm, excision neuroma.....			1				1				
Arm, plastic repair.....			1		1		1		1		
Arm, removal of bone fragments.....				1			1				
Chest, closure and drainage.....	1						1				
Chest, exploratory laparotomy (died: 1 hemorrhage, 1 pneumonia).....	2	2				1	2		1		
Face, plastic repair.....	1						1				
Foot, curetted.....	1						1				
Foot, excision of bone fragments.....	2						2				
Hand, incision and drainage.....	1		1						1		1
Leg, bullet excised.....	2						1				1
Neck, bullet excised.....	1						1				
Shoulder, foreign body removed.....	1						1				
Shoulder, suture.....	1						1				
Thigh, foreign body removed.....	1						1				
Thigh, incised and curetted.....				1			1				
Thorax, suture and drainage.....	1						1				
Total operations (8,876).....	8,249	79	419	82	47	57	4,685	72	180	2	3,980

## DENTAL WORK.

TABLE 6.—*Dental operations for the calendar year 1920.*

Operation or treatment.	Number of cases.	Operation or treatment.	Number of cases.
Calculus removed (sets cleaned).....	17,702	Treated for:	
Extracted:		Fractured maxilla.....	237
Teeth.....	10,849	Gingivitis.....	5,156
Roots.....	47,282	Impacted teeth.....	1,105
Canals:		Necrosed maxilla.....	880
Treated.....	22,989	Pyorrhea.....	2,675
Filled.....	18,034	Fillings:	
Pulpis:		Amalgam.....	53,138
Extirpated.....	6,312	Cement, temporary.....	4,948
Devitalized.....	4,845	Cement, permanent.....	10,506
Putrescent.....	5,639	Cement, synthetic.....	15,775
Abscess:		Gutta-percha.....	18,982
Lanced.....	1,805	Porcelain crowns.....	1,628
Roots opened.....	1,716	X-ray.....	2,447
Chronic and fistulous.....	1,429	Anæsthetic:	
Restoration:		General.....	112
Bridge.....	671	Local.....	561
Crown.....	648		
Inlay.....	341	Total operations.....	258,485
Plate.....	73		

## RECRUITING.

TABLE 7.—*Recruiting statistics, Navy and Marine Corps, for calendar year 1920.*

Character.	Navy.			Marine Corps.		
	Original.	Reenlistment.	Reserve.	Original.	Reenlistment.	Accepted applicants.
Total applicants.....	138,742	18,498	1,913	35,631	3,410	15,492
Total enlisted.....	56,861	16,276	1,663	11,074	2,977	14,285
Examined by medical officer.....	119,651	18,095	1,899	29,546	3,265	15,287
Rejected by medical officer.....	47,826	815	336	15,336	386	1,002
Principal cause of rejection by medical officer:						
Abscess conditions (general).....	40	5	4	4		
Alcoholic.....	16	2		1		
Deformities.....	3,230	42	25	1,105	19	106
Drug addict.....	4			4		2
Ear—						
Defective hearing.....	954	47	2	415	27	36
Other auditory diseases.....	1,407	44	8	343	20	76
Eye—						
Color blindness.....	1,461	8	25	669	4	53
Defective refraction.....	7,832	100	53	2,296	51	68
Other visual diseases.....	561	9	24	208	6	23
Epilepsy.....	29	1		6	1	7
Febrile conditions.....	24	1		1		
Flat feet.....	4,609	21	33	2,048	51	77
Gastro-intestinal tract, catarrhal conditions.....	24	2		3	1	3
Genito-urinary, nonvenereal.....	530	12	3	146	4	42
Genito-urinary, venereal.....	1,610	89	9	480	3	80
Glands enlarged.....	129		1	47	1	9
Goiter or tendency to.....	385	2	3	207	2	17
Growths (cysts, tumors, etc.).....	19			2		1
Heart affections.....	2,750	41	8	1,252	38	165
Height, over.....	23			19	1	1
Height, under.....	2,340	31	8	751	2	1
Height and weight, under.....	44	1				18
Hemorrhoids.....	313	14	2	181	5	28
Hernia, or tendency to.....	1,498	15	2	575	11	53
Mental disorders.....	519	5		152	6	30
Nasal abnormalities.....	162	2		205	7	3
Other nervous conditions.....	35	4	1	3		7
Poor physique.....	711	20	22	306	3	33
Pyorrhea.....	98			10		
Respiratory tract, catarrhal conditions.....	120	6		5	2	13
Rheumatic conditions.....	32	2		10		4
Skin diseases.....	1,009	20	8	314	11	14
Speech, defective.....	112	1		38		6
Tattoo, objectionable.....	17					
Teeth, defective.....	3,087	41	12	1,110	32	13
Tonsillar conditions.....	316		24	87	1	3
Tuberculosis or suspects.....	788	22	3	347	16	35
Unightly scars or marks.....	8					
Varicose and varicose veins.....	1,544	18	5	535	15	35
Weight, over.....	16			20		
Weight, under.....	9,369	147	52	2,021	34	29
All other causes.....	51	40	4	10	12	7

TABLE No. 8.—Statement of total cost of maintenance and operation and average cost per diem for maintenance and operation of naval hospitals for the fiscal year 1921.

Hospital at—	Maintenance and miscellaneous expenditures, including medical stores.	Civil employees.	Total maintenance and operation.	Total number sick days.	Average cost per diem for maintenance and operation.	Provisions.	Total number subsistence days.	Average cost per diem for subsistence (not included in maintenance).
Annapolis, Md.....	\$143,989.71	59,156.02	\$203,145.73	28,431	\$7.14	\$84,833.69	64,580	\$1.313
Canacao, P. I.....	31,941.36	24,230.49	56,171.85	31,340	1.78	53,701.86	58,751	.885
Charleston, S. C.....	73,545.41	65,454.47	138,999.88	52,971	2.62	89,496.11	95,956	.94
Chelsea, Mass.....	165,657.11	162,657.65	327,974.76	74,050	4.43	117,132.25	134,747	.869
Fort Lyon, Colo.....	487,021.05	538,216.41	1,025,237.46	148,899	6.88	345,949.43	253,803	1.18
Great Lakes, Ill.....	159,200.60	174,194.77	333,395.37	171,079	1.94	277,528.98	326,294	.848
Guam <sup>1</sup> .....								
Hampton Roads, Va.....	76,697.63	63,465.30	140,162.93	125,443	1.11	176,524.32	220,346	.8203
Key West, Fla.....	19,577.01	20,537.33	40,114.34	5,321	7.53	20,672.80	21,032	1.008
League Island, Pa.....	191,545.56	98,723.75	290,269.31	82,412	3.52	176,285.99	175,286	1.005
Mare Island, Calif.....	219,119.68	140,186.62	359,306.30	227,645	1.57	291,767.57	332,869	.8834
New Orleans, La.....	43,757.32	39,301.88	83,059.20	18,651	4.45	36,859.63	34,440	1.087
Newport, R. I.....	110,924.19	62,884.82	173,809.01	70,511	2.46	103,373.20	109,945	.94
New York, N. Y.....	409,310.20	292,851.63	702,161.83	172,989	4.05	264,397.09	258,475	1.018
Norfolk, Va.....	148,862.20	152,412.43	301,274.63	61,659	4.88	260,160.89	256,170	.999
Olongapo, P. I.....								
Parris Island, S. C.....	14,595.54	19,864.00	34,459.54	25,948	1.32	33,766.32	43,906	.765
Pearl Harbor, Hawaii <sup>1</sup> .....								
Pensacola, Fla.....	27,189.96	33,787.04	60,977.00	16,037	3.80	39,068.14	37,030	1.0348
Portsmouth, N. H.....	56,889.78	30,188.48	87,078.26	17,654	4.93	42,189.21	39,481	1.07
Puget Sound, Wash.....	65,644.64	47,172.64	112,817.28	39,793	3.66	47,990.94	57,553	.833
San Diego, Calif.....	84,604.44	40,657.26	125,261.70	112,066	1.11	96,882.61	147,235	.6580
St. Thomas, V. I.....	12,513.46	3,743.12	16,256.58	7,525	2.16	15,331.50	21,165	.724
Washington, D. C.....	110,992.05	104,830.50	215,822.55	55,996	3.85	118,425.66	109,388	1.109
Yokohama, Japan <sup>1</sup> .....								

<sup>1</sup> Reports not received.

NOTE.—Hospitals placed out of commission before close of fiscal year 1921: Gulfport, Miss., transferred to United States Public Health Service May 13, 1921.

TABLE No. 9.—Statement of the activities of naval medical supply depots.

	Number of requisitions.	Value of requisitions filled.
New York, N. Y.....	3,466	\$957,861.84
Mare Island, Calif.....	744	302,819.38
Canacao, P. I.....	260	35,094.09

TABLE No. 10.—Statement of the naval hospital fund.

The condition of the fund is as follows:

Balance on hand July 1, 1919.....	\$726,571.50
Transferred to credit since July 1, 1919.....	3,480,111.32
Total.....	4,206,682.82
Expended since July 1, 1919.....	3,892,593.78
Balance on hand June 30, 1920.....	314,089.04



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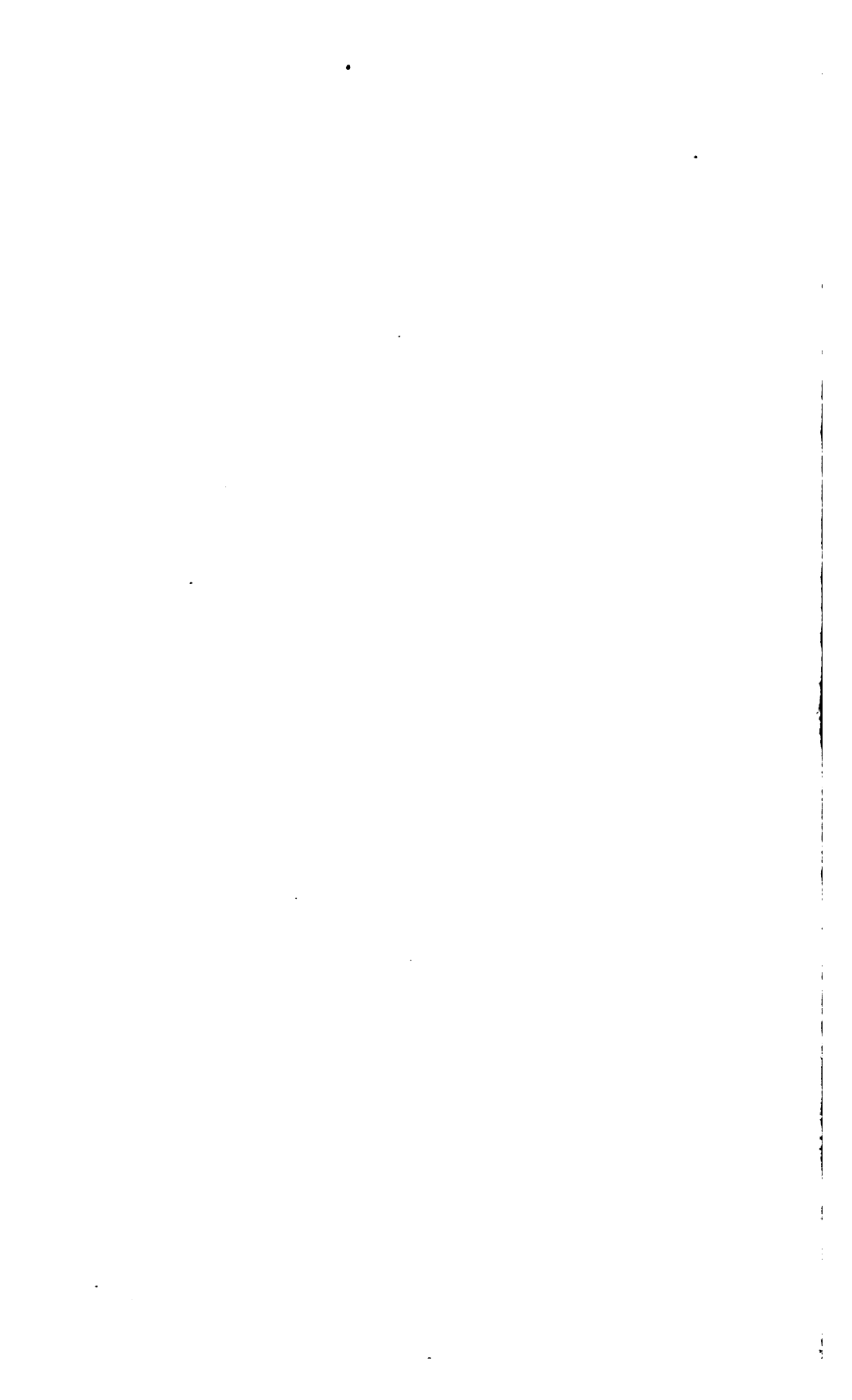
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